





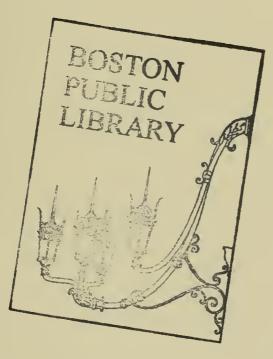




Draft Project Impact Report

BIND

# François - Xavier Bagnoud Building



Harvard School of Public Health 667 Huntington Avenue Boston, Massachusetts 02115

September 1993

# HARVARD SCHOOL OF PUBLIC HEALTH

Richard J. Cannon
Dean for Administration

Mr. Paul L. Barrett, Director Boston Redevelopment Authority One City Hall Square, 9th Floor Boston, Massachusetts 02201 September 14, 1993

RE: Harvard School of Public Health Francois-Xavier Bagnoud Building Project Draft Project Impact Report

Dear Director Barrett,

Enclosed please find twenty five copies of our Draft Project Impact Report in response to the Boston Redevelopment Authority's August 14th Scoping Determination. I have discussed with Beverley Johnson and Dick Mulligan our availability for a review meeting between the School, its consultants and your staff. I will work with them to arrange a time in the near future.

Sincerely,

Richard J. Camon

cc:Beverley Johnson Dick Mulligan

# FRANCOIS-XAVIER BAGNOUD BUILDING

Harvard School of Public Health

# DRAFT PROJECT IMPACT REPORT

September 1993

Submitted to:

Boston Redevelopment Authority 1 City Hall Square Boston, Massachusetts 02201

Submitted by: Harvard School of Public Health 677 Huntington Avenue Boston, Massachusetts 02115

Prepared by:
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Architects/Planners
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Boston, Massachusetts 02210

# Consultants

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Pedestrian Level Wind Analysis: Frank Durgin 151 Lexington St. Belmont, MA 02178

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Air Quality - Exhaust Stacks: John Walker Rowan Williams Davies & Irwin Inc. 650 Woodlawn Road West Guelph, Ontario, Canada N1k 1B8

Water Quality: Grant Anderson Bard, Rao + Athanas / Sullivan Partnership 302 Union Wharf Boston, MA 02109

Noise - Exterior Mechanical Systems: Doug Sturz Acentech Incorporated 125 Cambridge Park Drive Cambridge, MA 02140 Geotechnical Impact: William A. Weiller Haley and Aldrich 58 Charles St. Cambridge, MA 02141

Construction Impacts: Joe McMahon Beacon Construction Co. Three Center Plaza Boston, MA 02108

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# I. Harvard School of Public Health

#### Purpose of the School

The Harvard School of Public Health educates public health scientists and professionals to promote and preserve the public's health. The School pursues new discoveries to prevent disease and to ameliorate its effects on populations and society. Faculty, staff, and students of the school also strive to encourage public debate on pressing health issues and serving the needs of their communities. The School's work centers on five substantive areas:

#### **Critical Diseases**

Reducing the mounting toll from AIDS, cancer, and heart disease.

## **Nutrition and Healthy Behaviors**

Educating and empowering people to live healthy existences.

#### Health and the Environment

Devising strategies for a safer and healthier environment.

#### **Health Care**

Monitoring the cost, quality, and availability of basic services to achieve greater equity in health care.

#### World Health

Closing the gap between the world's healthiest and least healthy peoples by building the human and technical capacity in developing societies.

## **Academic Departments**

The School consists of eleven academic departments, one division, and one interdepartmental master's degree program. They are: Biostatistics, Cancer Biology, Environmental Health, Epidemiology, Health and Social Behavior, Health Policy and Management, Maternal and Child Health, Molecular and Cellular Toxicology, Nutrition, Population and International Health, Tropical Public Health, Division of Biological Sciences, and Master of Public Health Program.

#### Faculty, Staff, and Students

At present, the faculty totals 233, including those with adjunct and secondary appointments. An additional 500 research associates, administrative, professional and support staff work at the School. 653 students are enrolled in degree programs. Over 150 post-doctoral fellows are in residence at the School, and the School serves over 1500 continuing education students each year.

#### **Facilities**

The School occupies 365,800 gross square feet on the Harvard Longwood Campus for its academic and research activities, incorporating the following:

Laboratory and laboratory support
Office and office support
Teaching and teaching support
Common, mechanical, and general support

94,800 gross square feet 115,000 gross square feet 20,000 gross square feet 136,000 gross square feet





# II. The Project Description

#### **Need for New Facility**

Since the last School of Public Health building was added to the Longwood campus in 1972, the School has grown dramatically. For example, since 1980, the School budget has more than tripled. In inflation adjusted dollars, (e.g., in 1985 dollars) the School budget has grown by 70% during the same period. The School's research volume, measured in terms of direct research dollars per square foot, is almost double that of many comparable research institutions in the Boston area. The student population has also grown during this period and the movement toward an active learning pedagogy (case discussion teaching methods, group projects, and small group exercises) has created the need for more classrooms and classrooms of different sizes and capabilities.

All of this growth and adaptation has occurred with no increase in the size of the campus. This has led to severe overcrowding, limits on the School's ability to respond to important public health research and education initiatives, and serious constraints on the School's future ability to remain competitive in attracting high quality faculty and students. The age of the School's facilities also impinges on its long-term competitiveness as an attractive institution for federal and foundation-sponsored research.

The Project is needed for the School to remain a strong academic and research institution for public health in the future. Specifically, the Project will relieve a considerable amount of overcrowding in research and office space; it will provide for the needed classroom space; it will provide for some growth space for existing programs; and it will house the new Francois-Xavier Bagnoud Center for Health and Human Rights. This Center seeks to advance community, national, and global health through focused attention to the human rights dimensions of health. The Project, named in honor of Francois-Xavier Bagnoud, is being financed, in part, from a generous lead gift from the Francois-Xavier Bagnoud Foundation.

This Project does not fall under the requirements for development review in Article 31. The Harvard School of Public Health is submitting this Project Impact Report voluntarily, for informational purposes, at the request of the Boston Redevelopment Authority, to summarize the Project and its potential impacts. The site is not within the physical boundaries of the Downtown/Northern Avenue corridor described in Section 31-3 of the zoning code.

The Project is a new research and education building of 80,527 square feet of gross floor area (GFA) on a triangular shaped site adjacent to an existing laboratory building known as the School of Public Health Building #2 (SPH Building #2). The drawings located in the appendix and listed below show the configuration of the Project:

L 1.1	Site Plan
A 2.0	Basement Floor Plan
A 2.1	Ground Floor Plan
A 2.2	First Floor Plan
A 2.3	Second Floor Plan
A 2.4	Third Floor Plan
A 2.5	Fourth Floor Plan
A 2.6	Typical Office Floor Plan (Floors 5-7)
A 2.7	Penthouse Plan
A 2.8	Roof Plan
A 2.9	Building Section
A 3.1	South Elevation (Huntington Avenue
A 3.2	East Elevation
A 3.3	West Elevation

A 4.1 Site Plan Logistics A 4.2 Site Section A 4.3 Site Section

The Project will house biomedical and research laboratories, core science support laboratories, classrooms, office and support space for both wet and analytical sciences in a seven story building plus a mechanical penthouse floor, and an additional level below grade to house mechanical equipment.

The Project will include the construction of a new entrance lobby for the School of Public Health in the triangular space between SPH Building #1 and SPH Building #2. The new lobby will be a new and significant "front door" for the School of Public Health on Huntington Avenue.

The Project will remove the existing loading dock on Huntington Avenue in the adjacent SPH Building #2; thereby, eliminating the Huntington Avenue truck traffic that frequents the loading dock. Truck traffic will instead use an existing off-street ramp on Longwood Avenue to make deliveries to a newly-constructed loading dock adjacent to existing below-grade facilities. The Project also will eliminate 25 parking spaces now on the lot. As a result, construction of the Project will operate to reduce the traffic and noise associated with the School of Public Health on Huntington Avenue.



#### III. **Applicable Zoning Provisions and Required Relief**

# A. Zoning and Zoning Relief

The School of Public Health is located on a lot within the H-3 Zoning District and within the Restricted Parking and Institutional Overlay Districts.

The use of the Project will require two conditional use permits; one under Article 8, Section 8-7, Use Item 16A, "college or university use," and the other under Article 8, Section 8-7, Use Item 24, "scientific research and teaching laboratories not conducted for profit and accessory to a use listed under use item No. 16A." The construction of the Project will also require a variance from the front yard requirements of Article 18, Section 18-1.

## **B.** Development Impact Project Plan Approval

The Project is not subject to Articles 26, 26A, or 26B, and therefore, does not require development impact project approval.





# IV Community Review of the Proposed Project

- 1. In December, 1992, the School of Public Health notified residents and organizations in the Mission Hill and Fenway communities and the Longwood Medical Area that the School expected to receive a substantial gift, thus permiting the construction of needed additional facilities on the School's Longwood campus.
- 2. On June 1, 1993, the Harvard School of Public Health presented the Project to the Mission Hill Planning and Zoning Advisory Committee (PZAC). The School expects to continue and update this presentation to the PZAC at a second meeting in September, 1993.
- 3. The Harvard School of Public Health provides an active community relations effort and employs a full-time Director of Community Relations. During August and early September, 1993, Bruce Smith, the Director of Community Relations, will conduct personal briefings and a summary of the Project to the leadership of the following community institutions and organizations:

## **SCHOOLS**

Maurice J. Tobin School Farragut School Mission Church Grammar School Boston Latin School

#### COMMUNITY, CIVIC, RELIGIOUS, AND GOVERNMENT ORGANIZATIONS

Mission Main Tenants Task Force, Inc. Ruggles Street/Mission Hill Day Care Alice H. Taylor Local Tenants Policy Council, Inc. Mission Hill Recreation Center

Parker Hill/Fenway Neighborhood Service Center Mission Hill Community Center Sociedad Latina Mission Hill Neighborhood Housing Services Project Life, Inc.

Mission Park/Roxbury Tenants of Harvard Boston Central Elder Services

Back of the Hill Community Development Corporation Gloucester Memorial Church Mission Church Igesia de Dios Mission Hill Crime Committee Mission Hill Neighborhood Association Blacks and Latinos Together Mission Hill/Healthy Boston

Marvin Rosenkrantz, who represents Mission Hill businesses

The Mission Hill Gazette The Mission Hill News The Fenway News El Mundo

The Fenway Community Development Corporation The Fenway Civic Association Hospice West

4. In August and early September, 1993, all property owners on Huntington Avenue from Longwood/Saint Alphonsus Street to Brigham Circle will be notified about the Project and given an opportunity to have their questions and concerns addressed.

# V Development Review Requirements - Article 31

# A. General Information

- 1. Applicant Information:
- a. Development Team
  - 1. Names
  - a. Developer:

Property Owner: President and Fellows of Harvard College c/o Harvard School of Public Health 677 Huntington Avenue Boston, MA 02115

Owner's Representative: Richard Cannon, Dean for Administration Harvard School of Public Health 677 Huntington Avenue Boston, MA 02115 (617) 432-1020

# b. Attorney:

Legal Counsel:
Robert E. McGaw, Esq.
Harvard University Office of General Counsel
1350 Massachusetts Avenue
980 Holyoke Center
Cambridge, MA 02138-3834
(617) 495-1228

# c. Project Consultants:

Architect: James Collins, Jr., Principal Payette Associates, Inc. Architects/Planners 285 Summer Street Boston, MA 02210 (617) 342-8200

# b. Legal information

- (1) There are no legal judgments or actions pending concerning the project.
- (2) The entire lot is owned and controlled by the President and Fellows of Harvard College.
- (3) The triangular site on which the project will be constructed is subject to an easement for highway purposes taken by Order of the Massachusetts Department of Public Works, dated June 13, 1979, and recorded with the Suffolk County Registry of Deeds in Book 9191, page 584.

#### 2. Financial Information

The project will be financed through a gift from the Francois-Xavier Bagnoud Foundation and Harvard University Funds.

## 3. Project Area

#### Site dimensions

The Project Site is part of a larger parcel containing approximately 642,138 square feet and bounded by Huntington Avenue, Longwood Avenue, Brigham and Women's Hospital, and Children's Hospital as described in the Appendix and shown on the site plan LS 1.1. The Lot encompasses the Harvard Medical School, the Harvard Dental School, and the School of Public Health. The Project Site is bounded by Huntington Avenue to the south, School of Public Health Buildings #1 and #2 to the west, 180 Longwood Avenue to the north, and the area of discontinued Worthington Street to the east. The land area of the Project Site is approximately 16,300 square feet.

#### Site Description

The Project Site is currently used as a 25 car surface parking lot for the School of Public Health. The site for the new entrance lobby is currently a grade level exterior plaza constructed above a below grade extension of School of Public Health Building #2.

#### Site Survey

Two site surveys are are included within the appendix; LS 1.1 which describes the entire lot; LS 1.2 describes that portion of the lot on which the Project shall be constructed.

## 4. Public Benefits

#### a. Linkage

Pursuant to a prior agreement, the Harvard School of Public Health will make Linkage payments at a combined rate of \$6.00 per eligible square foot for each square foot of GFA in the Project. These payments include approximately \$402,635 for the housing linkage component and \$80,527 for the jobs linkage component.

## b. Construction Jobs

It is expected that there will be 250 construction jobs, i.e. work slots of varying duration, with a peak of 80 workers at any one time. This represents a total of 110 worker-years. The School and the Project general contractor will work diligently to see that local residents, minorities, and minority contractors are afforded a good opportunity to compete for these jobs and sub-contracts.

#### c. Permanent Jobs

It is expected that there will be 150 incremental permanent jobs at the School of Public Health as a result of this Project, identified as follows:

Faculty	20
Fellows and Graduate students employed	65
Technical Staff	45
Office Staff	20
Total	150

Efforts to enable Mission Hill residents to compete for these positions are described in our community report.

#### d. Other Public Benefits

The School of Public Health has engaged in active community service programs for many years and expects to continue to provide the types of community benefits as in the past. Refer to Appendix for Draft Harvard School of Public Health Community Report dated October 1993.

- 5. Regulatory Controls / Permits
- a. Existing zoning requirements and anticipated requests for zoning relief are explained in Section III.
- b. The anticipated permits required from other local, state and federal entities are noted below:

		Proposed
Agency Name	Anticipated Permit/Action	Application Dates
Federal:		
Environmental Protection Agency	Request for exclusion from NPDES permit requirement for temporary construction dewatering	
	Pre-asbestos Removal Notice	September 15, 1993
State:		
Massachusetts Department of Environmental Protection		
Division of Water Pollution Control	Sewer Connection Permit Pretreatment System Approval	March, 1994 March, 1994
Division of Air Quality Control	Comprehensive Plan Approval for emergency generator	March, 1994
	Pre-construction Notice Pre-demolition Notice Pre-asbestos Removal Notice	September, 1993 September, 1993 September, 1993
Department of Labor and Industries	Pre-asbestos Removal Notice	September, 1993
Massachusetts Water Resources Authority	Sewer Use Discharge Permit	January, 1995
Massachusetts Historical Commission	Review of Impacts on State Register Properties	

## Local:

Committee on Licenses of the Boston Public Safety Commission	License for storage of flammables	Before testing of Generator
Boston Fire Department	Permit for storage of flammables	
Boston Water and Sewer Commission	Water and Sewer Tie-in Temporary discharge permit for construction dewatering	
Boston Inspectional Services Department	Building Permit	February 1, 1994
Boston Transportation Department	Construction Traffic Management Plan (voluntary under Article 31)	January, 1994
Boston Civic Design Commission	Project Review	October, 1993
Boston Department of Health	Asbestos Removal Permit	September, 1993

c. The project is not subject to the Massachusetts Environmental Policy Act (MEPA).

# 6. Community Groups

- a. See IV; for a list of meetings proposed and held with interested parties.
- b. See Section IV; Discussion of Community Review of the Proposed Project; a list of abutters to the Project follows.

# ABUTTER'S LIST Harvard Longwood Campus Ward 4, Parcel 1882

Ward/Parcel No.	Property Address	Owner
04/1878	641 Huntington Ave.	Harvard College 641 Huntington Avenue Boston, MA 02115
04/1879	643 Huntington Ave.	Harvard College 643 Huntington Avenue Boston, MA 02115
04/1896	721 Huntington Ave.	Brigham & Womens Hosp. Inc. 721 Huntington Avenue Boston, MA 02115
04/1870	300 Longwood Ave.	The Childrens Hospital Corp. 300 Longwood Avenue Boston, MA 02115
04/1870-1	300 Longwood Ave.	Le Goodies Gift Shop c/o SJ Novick-Childrens Hospital 300 Longwood Avenue Boston, MA 02115
04/1870-2	300 Longwood Ave.	Le National Orthotics c/o SJ Novick-Childrens Hospital 300 Longwood Avenue Boston, MA 02115
04/1897-28	18 Shattuck Street	Biosciences Research 18 Shattuck Street Boston, MA 02115
04/1883	55 Shattuck Street	The Childrens Hospital Corp. 55 Shattuck Street Boston, MA 02115
04/1841	625 Huntington Avenue	Commonwealth of Mass. 115 Palace Road Boston, MA 02115
04/1876	635 Huntington Avenue (158 Longwood Avenue)	Arthur Sparr, Trusts 635 Huntington Avenue Boston, MA 02115

Ward/Parcel No.	Property Address	Owner
04/1877	639A Huntington Avenue	Irving Salloway, Trusts c/o Arthur Sparr 635 Huntington Avenue Boston, MA 02115
10/196	640 Huntington Avenue	Commonwealth of Mass. Board of Trustees 640 Huntington Avenue Boston, MA 02115
10/15	646 Huntington Avenue	Charlesbank Apts Inc. 646 Huntington Avenue Roxbury Crossing, MA 02120
10/37	660 Huntington Avenue	Arnold Z. Mason 161 Massachusetts Avenue Boston, MA 02115
10/150	662 Huntington Avenue	Eustathios Demetriades 401 Quincy Shore Drive N. Quincy, MA 02171
10/106	682 Huntington Avenue	George Voulalas, et al. 27 Cedar Street Hanover, MA 02339
10/140	690 Huntington Avenue	Simon B. Gottlieb c/o Stanhope Garage 76 Seattle Street Allston, MA 02134
10/135	698 Huntington Avenue	Francis L. Fabiano, et al. 1 Worthington Street Roxbury, MA 02120
10/134	700 Huntington Avenue	Charles S. F. Lew 700 Huntington Avenue Boston, MA 02115
10/133	702 Huntington Avenue	Edward J. Cotto 51 Calumet Street Boston, MA 02120

Ward/Parcel No.	Property Address	Owner
10/132	704 Huntington Avenue	John Adams, Jr. 704 Huntington Avenue Boston, MA 02115
10/131	706 Huntington Avenue	Seven 06 Huntington LP 706 Huntington Avenue Boston, MA 02115
10/130	714B Huntington Avenue	John H. O'Neill, Jr. 59 Arborway Street Jamaica Plain, MA 02130
04/1844	179 Longwood Avenue	Mass College of Pharmacy 179 Longwood Avenue Boston, MA 02115
04/1845	221 Longwood Avenue	Boston Hospital for Women c/o General Accounting 70 Vining Street Boston, MA 02115
04/1845-1	221 Longwood Avenue	Boston Hospital for Women 221 Longwood Avenue Boston, MA 02115
04/1850	245 Longwood Avenue	Harvard College 107 Avenue Louis Pasteur Boston, MA 02115
04/1851	271 Longwood Avenue	The Childrens Hospital Corp 271 Longwood Avenue Boston, MA 02115
04/1897-30	18 Shattuck Street	Biosciences Research 18 Shattuck Street Boston, MA 02115
04/1896	26 Shattuck Street	Brigham & Womens Hosp. Inc. 721 Huntington Avenue Boston, MA 02115





## V Development Review Requirements - Article 31

## B. Urban Design Component

### Narrative description

#### 1. INTRODUCTION AND BACKGROUND

The Need for the Proposed Project

The academic, research, and institutional needs for the Project have been described in the preceding sections of this DPIR. Beyond relieving a considerable amount of overcrowding in the existing School of Public Health facilities, the Project will house the new Francois-Xavier Bagnoud Center for Health and Human Rights. The Center will be dedicated to advancing human health through the study of the human rights dimensions of health and well-being.

It is in the overlap of this extraordinary mission with the siting of the Project that the issue of "need" extends to include an urban design dimension.

With the Project, the School of Public Health will substantially achieve its commitment to contribute more positively to its immediate public environment — Huntington Avenue. The existing buildings of the School of Public Health, products of the early 1970's (not an era for promoting American urbanism), are not oriented toward Huntington Avenue, and as a result, only contribute to the fragmented nature of the street. The massing of the Project not only reinforces the street alignment of Huntington Avenue by filling in an unusual setback site, but also by accommodating a prominent — and heretofore missing — public entrance to the School of Public Health directly on Huntington Avenue. As a result, the Center and the School begin to open to and embrace their context.

Indeed, in its scale, massing and architectural detailing, and its public orientation, the Project will serve as a prototype for subsequent building efforts along Huntington Avenue. This is necessary for the avenue to gradually regain its prominence and its grace as a major Boston street.

Consideration Given as Alternatives to the Project

The severe overcrowding of the existing School of Public Health buildings precludes the option of adapting or renovating space within them to accommodate the functions of the Project.

#### Consideration Given to Alternative Locations

The 1989 Institutional Master Plan for the Harvard Longwood Campus identified several sites as future expansion possibilities for the campus. Most of these relate to the area identified as the "East Quadrangle" which began to take form with the construction of the Alpert Building (formerly known as the East Quadrangle Research Facility), completed in 1992. Completing this quadrangle is contingent on the demolition and/or major alteration to several existing buildings which is a long-term rather than a short-

term planning goal of Harvard University.

Since the Project directly extends a number of the research and teaching functions housed in the present School of Public Health buildings, it is imperative that the Project be contiguous with those buildings. The only unbuilt site on the Harvard Longwood Campus which meets this criteria is the site for which the Project is being designed.

Finally, the Project site is the only open site within the Harvard Longwood Campus that can begin the process of reorienting the School of Public Health to Huntington Avenue and thus improving the character of this important street.

#### 2. RELATIONSHIP TO THE OVERALL URBAN DESIGN CONTEXT

As an academic community, the Harvard Longwood Campus is fittingly arranged about courtyards and quadrangles; each building simultaneously part of an ensemble of buildings and spaces, and an independent, often distinguished, edifice. As a campus within the City of Boston, the Harvard Longwood Campus is also a product of the city's street and block structure. The nature of an urban fabric of streets and blocks is one of accessibility and continuity. It is along the edges of a campus, such as Huntington Avenue, that these two, somewhat contradictory systems, must come together.

Prior to the design of the Project the response of the Harvard Longwood Campus to Huntington Avenue has primarily been that of a back door. With the design of the Project, Harvard resolves to address its dual responsibilities toward its context.

#### 3. RESPONSE TO THE IMMEDIATE CONTEXT & ESTABLISHED DISTRICT GUIDELINES

As the accompanying site documentation describes, the existing context is quite heterogeneous. Buildings of varying scale, age, facade expression, primary materials, use and orientation typify the immediate Huntington Avenue corridor. As a public corridor, Huntington Avenue suffers from so much architectural heterogeneity.

With its relatively modest scale and height, conformance to the alignment of the street, articulated lower stories, material and color palette, and prominent entry, the Project rejects the aloofness that many of the newer buildings project toward Huntington Avenue. Instead, the Project reaffirms the attention to the street that many of the older buildings along Huntington Avenue display, and adheres to the district guidelines being developed by the Boston Redevelopment Authority.

#### 4. AUGMENTING THE PEDESTRIAN ENVIRONMENT

The quality of the pedestrian environment will be enhanced by the construction of the Project. The reinforcement of the sidewalk edge, new landscaping and tree planting, the elimination of several curb cuts, the new entry plaza, and the new entrance for the School of Public Health will each improve the pedestrian experience. Walking next to the Project with the opportunity to observe some of the work taking place within the Project and the activities within the fully glazed entry courtyard will further enliven the pedestrian experience.

Other improvements will include the elimination of the present surface parking lot on the site, and the removal of the existing service and loading bays. Indeed, the removal of the existing service functions

from Huntington Avenue will have the additional benefit of reducing disruptive truck traffic in the vicinity of the site and along the sidewalk.

### 5. ARCHITECTURAL RESPONSE TO THE URBAN DESIGN CONTEXT

Architectural responses to the urban design context, already introduced above, may serve as a summary:

- 1. Building height is comparable to the older apartment buildings on the east side of Huntington Avenue, and is a transitional height between the lower buildings at the Longwood/Huntington intersection and the much taller 1970's building of the School of Public Health.
- 2. Alignment of the primary facade with Huntington Avenue reinforces the street wall.
- 3. A simple palette of durable and elegant materials and regular fenestration becomes more elaborate at the lower stories where the interaction with the pedestrian occurs.
- 4. A prominent entry leading to a fully glazed entry court animates the street environment and establishing a new and more positive relationship between the School of Public Health and its neighbors.
- 5. Removing surface parking lots, curb cuts and service bays from the Huntington Avenue frontage improves the quality of Huntington Avenue.
- 6. Articulating the corners of the building because of their prominence is appealing as one approaches the building from both directions along Huntington Avenue.
- 7. Masking the eccentric relationship of the existing buildings of School of Public Health to Huntinton Avenue, and filling in odd triangular open spaces, is essential and establishes a new precedent for future additions to the Harvard Longwood Campus along Huntington Avenue.

### 1. Written Description of Program Elements

#### A. Program Elements

Program elements within the Project have been included on the drawings in order to describe potential layouts for each floor and allow budget estimates to be accomplished. Floors 1-4 have been shown as Lab floors; floors 5-7 have been shown as Office floors. Actual layouts and/or actual occupants have not been determined as of the date of printing of this report. The following is provided to describe those program elements which are depicted on the floor plans.

The following program elements are currently included within the Gross Floor Area of the Project:

#### Entrance Lobby

A new entrance lobby will be constructed at an existing exterior plaza at the intersection of the School of Public Health Buildings #1 and #2 (SPH Building #1 and SPH Building #2). The Lobby will serve as the major Huntington Avenue entrance to the School of Public Health complex of buildings, and as a major orientation space around which all of the School of Public Health buildings will focus. The lobby will accommodate a security desk, a fire command center for the School of Public Health, and a second level walkway, parallel to Huntington Avenue, which will connect the Project with SPH Building #1. The lobby will provide access to an existing stair tower for access to SPH Building #2.

#### Classrooms

The Ground Floor will be fit out with three Case Method Study Rooms and two Classrooms in order to alleviate current overcrowding in existing School of Public Health classrooms. The Case Method Study Rooms will accommodate 50-60 people each.

#### Research Labs

Floors 1-4 will be fit out with Research Laboratories and Support Spaces. 95% of the Research Lab space shall be designated Biological Safety Level #2 (BL-2) labs. Five percent (approximately 1800 GSF) of the lab space will be designated as BL-3 labs, requiring higher levels of containment and higher degrees of filtration of exhausts from the space.

BL-2 Research Labs will be "Open" Labs sized to accommodate 12-18 researchers. Open Labs promote safety, interaction between research groups, and sharing of equipment. A total of 5 fumehoods per floor will be accessed from the Labs. Support spaces shall include the following:

#### **Environmental Rooms**

Provide temperature controlled environments for temperature sensitive experiments and for storage of temperature sensitive materials.

#### Glasswashing Room

Provide sterile glassware for experiments.

#### Tissue Culture Room

Provide for use of Biological Safety Cabinets which provide higher levels of containment than typical lab spaces.

#### **Equipment Rooms**

Provide space for the major, free-standing pieces of equipment which support research activities. They include centrifuges, freezers, spectrophotometers, shakers, and gamma and liquid scintillation counters. Equipment will be shared among research groups.

#### Support Rooms

Provide space for as-yet unprogrammed support activities, such as Darkrooms, Chemical/Balance Rooms, Electrophoresis Rooms, and Storage Areas.

### Office/Secretarial

A minimal number of offices will be constructed in association with the Research Labs. These offices will accommodate Research Group leaders; all other researchers will have desk space within the Labs. Secretarial space will be provided as required to support Offices.

#### Lunchroom

Provides space away from Labs for lab personnel to eat meals or take a break from Lab activities. Promotes interaction between lab personnel on a floor.

#### Lounge

Occurs at the intersection of the two major corridors; provides space for informal discussions and promotes interaction between building occupants.

#### Conference Room

Allows larger groups to gather to discuss findings, make presentations, etc. Also serves to accommodate visitors.

#### Offices

Floors 5, 6, and 7 are currently programmed as Office floors. Floors 6 and 7 will accommodate the Francois-Xavier Bagnoud Center for Health and Human Rights; an occupant for the fifth floor has yet to be determined. Offices in the Project will alleviate overcrowding which currently exists within other School of Public Health Buildings. Offices will be supported by Secretarial spaces, Copy Rooms, Kitchenettes, Conference Rooms, Storage Rooms, and other support spaces, as required by specific occupants.

#### Core Elements

Includes stacked common spaces required to support building occupants with regard to fire safety, vertical and horizontal circulation, and toilet facilities.

Two stairs extend from the Basement to the Penthouse. The south stair is a "smokeproof enclosure"; it includes ventilated vestibules, emergency stair pressurization, and direct egress at grade. Stairs are located remotely from one another, and eliminate the possibility of a "dead-end" corridor.

Corridors connecting the two stairs will be a minimum of 5'-0" wide. The corridor widens at the elevators to accommodate loading and unloading, and widens at the Lounge to accommodate informal discussions.

Two elevators extend from the Basement to the Penthouse. Elevators are sized to accommodate a stretcher, and conform to ADA requirements. Elevators are electric, requiring a 4'-0" deep pit below the basement slab and a machine room above the top of the shaft.

Male and Female Toilets are provided on each floor of the building. All toilets will meet the requirements of the ADA. Based on the Massachusetts Building Code, the occupant load for each floor is 100 persons, 50 female and 50 male. Based on this, the Project will provide toilet fixtures as per the Massachusetts Plumbing Code which accomodates 36-55 persons of each sex on each floor. Toilets on the Ground Floor are sized to accommodate 81-110 persons of each sex.

## Program (As presently designed) FXB Program

Ground Floor		Quantity	Unit Area (GFA)	Total (GFA)	
Ground Ploor	Case Method Study Rm Classrooms Toilets Stairs Elevators Storage Elevator Lobby Corridor	3 2 2 2 2 1 1 1	900 450 290 325 100 125 940 1890	2700 900 580 650 200 125 940 1890	
First Floor	Entrance Lobby Atrium Research Lab (BL-2)	1 1 2	2162 1346 1975	Total 2162 1346 3950	7985
	Office Secretarial Conference Room Environmental Room	2 1 1 2	175 140 520 110	350 140 520 220	
	Glasswashing Tissue Culture Support Rooms Equipment Lunchroom	1 1 4 1	325 170 125 275 200	325 170 500 275 200	
	Lounge Toilets Stairs Elevators	1 2 2 2	150 225 250 100	150 450 500 200	
	Elevator Lobby Corridor	1 2	475 630	475 1260 Total	13193
Second Floor	Lobby Bridge Research Lab (BL-2) Office Secretarial Conference Room Environmental Room Glasswashing Tissue Culture Support Rooms	1 2 2 1 1 2 1 1	1239 1975 175 140 520 110 325 170	1239 3950 350 140 520 220 325 170 500	
	Equipment Lunchroom Lounge	1 1	275 200 150	275 200 150	

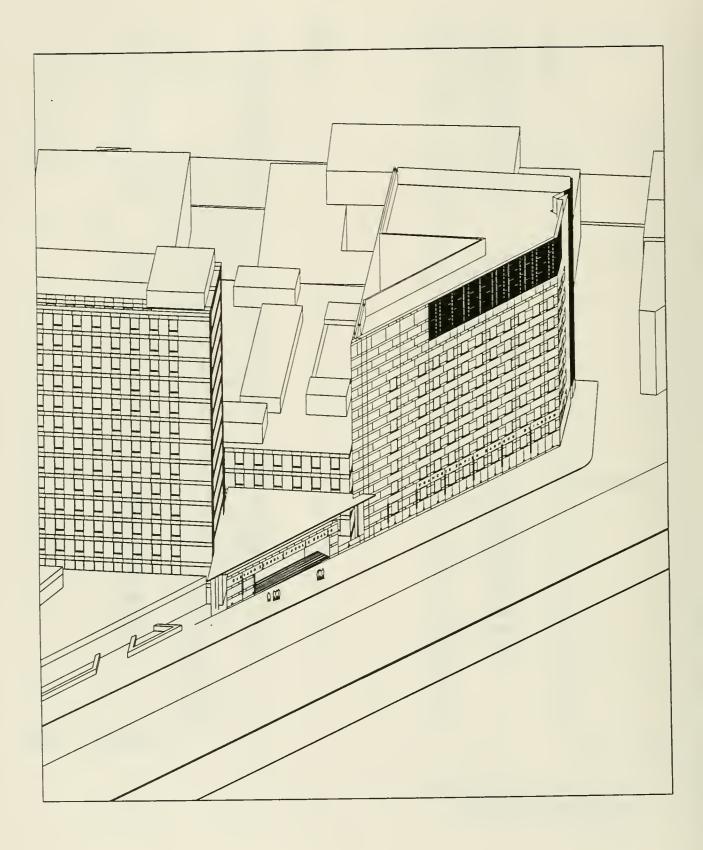
	Toilets Stairs Elevators Elevator Lobby Corridor	2 2 2 1 2	225 250 100 475 630	450 500 200 475 1260 Total	10924
Third Floor	Research Lab (BL-2) Office Secretarial Conference Room Environmental Room Glasswashing Tissue Culture Support Rooms Equipment Lunchroom Lounge Toilets Stairs Elevators Elevator Lobby Corridor	2 1 1 2 1 1 4 1 1 1 2 2 1 2 1 2 2 1 2 2 2 2	1975 175 140 520 110 325 170 125 275 200 150 225 250 100 475 630	3950 350 140 520 220 325 170 500 275 200 150 450 500 200 475	
				Total	9685
Fourth Floor	Research Lab (BL-3) Research Lab (BL-2) Office Secretarial Conference Room Environmental Room Glasswashing Tissue Culture Support Rooms Equipment Lunchroom Lounge Toilets Stairs Elevators Elevator Lobby Corridor	1 2 2 1 1 2 1 1 4 1 1 1 2 2 1 2 2 1 2 2 2 2	1730 1110 175 140 520 110 325 170 125 275 200 150 225 250 100 475 630	1730 2220 350 140 520 220 325 170 500 275 200 150 450 500 200 475 1260	0005
				Total	9685

Fifth Floor	Offices Open Office Secretary Support Conference Room Lounge Toilets Stairs Elevators Elevator Lobby Corridor	20 1 4 2 1 1 2 2 2 1 2	175 390 440 240 520 150 225 250 100 475 630	3500 390 1760 480 520 150 450 500 200 475 1260	
				Total	9685
Sixth Floor	Offices Open Office Secretary Support Conference Room Lounge Toilets Stairs Elevators Elevator Lobby Corridor	20 1 4 2 1 1 2 2 2 1 2	175 390 440 240 520 150 225 250 100 475 630	3500 390 1760 480 520 150 450 500 200 475 1260	9685
Seventh Floor	Offices Open Office Secretary Support Conference Room Lounge Toilets Stairs Elevators Elevator Lobby Corndor	20 1 4 2 1 1 2 2 2 2 1	175 390 440 240 520 150 225 250 100 475 630	3500 390 1760 480 520 150 450 500 200 475 1260	3003
				Total	9685

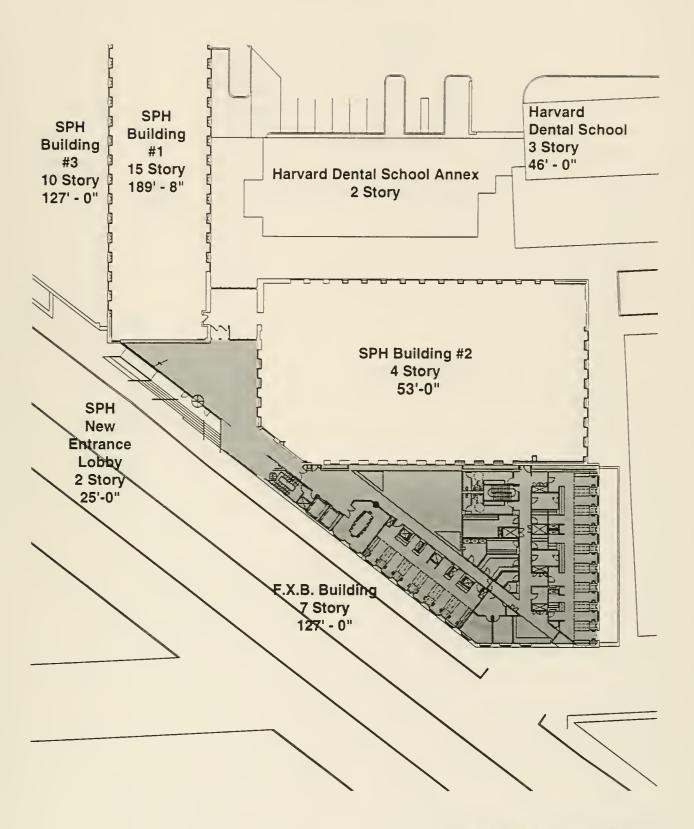
2. Plan for the surrounding area. see Appendix for Site Plan

BuildingTotal

80527



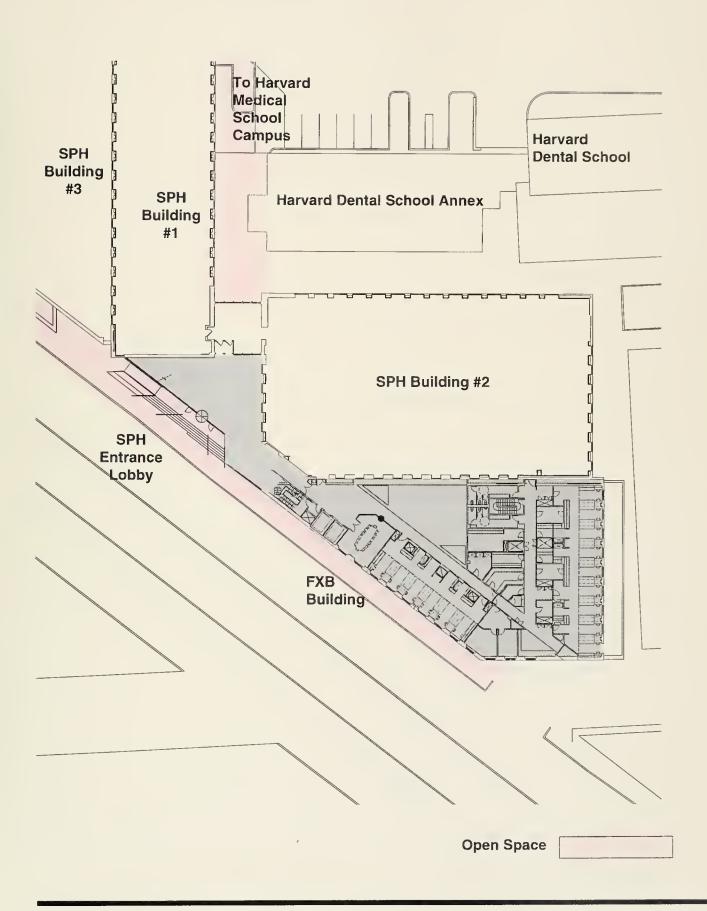
## 2b. Building Height



Note: Datum = BCB Elev. 35.0'

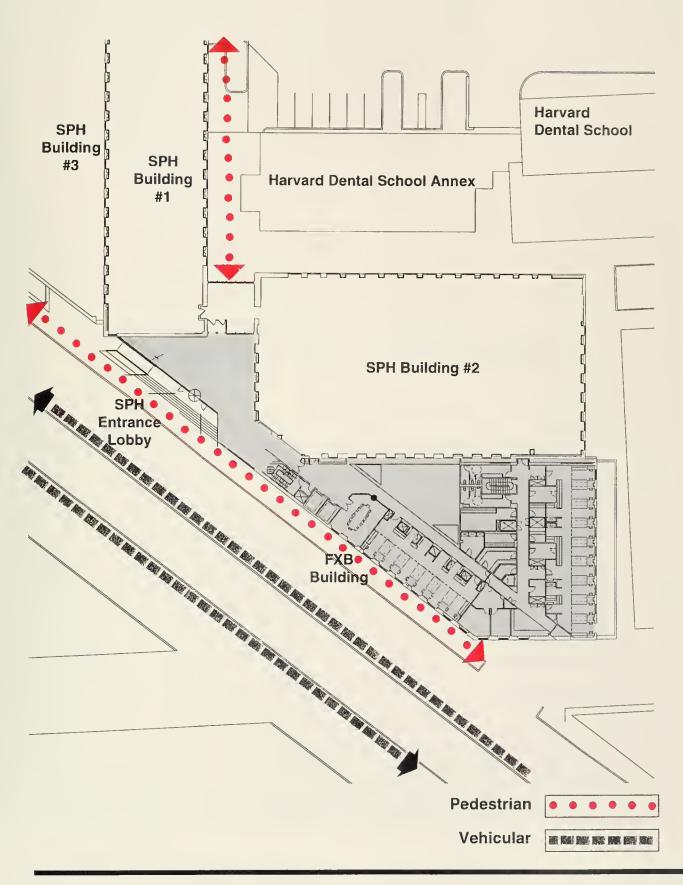


# 2c. Open Space





# 2d. Pedestrian and Vehicular Circulation







3. Photos of site and neighborhood

FRANCOIS-XAVIER BAGNOUD BUILDING



























# 4. Sketch/diagram clarifying design issues and massing options

#### **Design Sketches and Description**

The form of the Project is determined from a variety of site opportunities and constraints, as well as program requirements. The ability of the School of Public Health to create a new public "face", as well as provide a new major entrance on Huntington Avenue requires that the face of the building and entrance align with and face onto Huntington Avenue. However, the existing School of Public Health Buildings are not parallel or nearly parallel to Huntington Avenue (in fact, the angle between School of Public Health Buildings and Huntington Avenue is approximately 37 degrees). As a result, the building footprint approximates a right angle triangle. (See Figure #1).

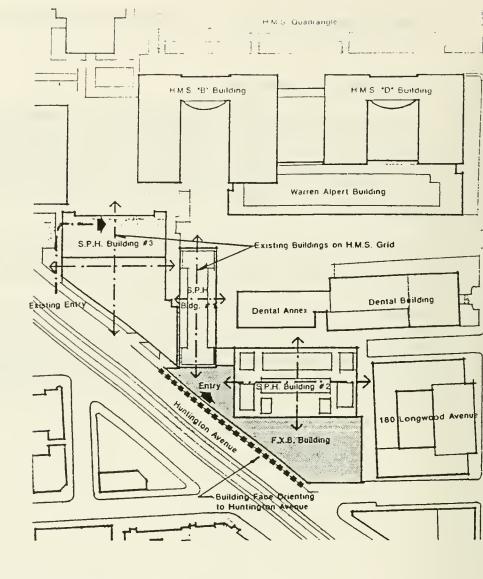
The height of the building is in conformance with the surrounding context. The Project will provide a transitional component between the existing, relatively low buildings on the corner of Longwood Avenue and Huntington Avenue, and SPH Building #1, which is 14 stories tall and towers above the existing context. (See Figure #2)

Establishing a laboratory building, which works best in a modular layout, within a triangular footprint has determined, to some degree, the form of the building. The lab "bar" along Huntington Avenue is only wide enough to accommodate a laboratory module and a corridor. The program requirement to maintain light to existing windows on the East face of SPH Building #2 has resulted in the internal floor openings, which forms the internal edge of the two main building forms. The series of floor openings will extend from the First Floor to the roof, and will function as an orientation space for the Project and for SPH Building #2. (See Figure #3)



N.T.S.

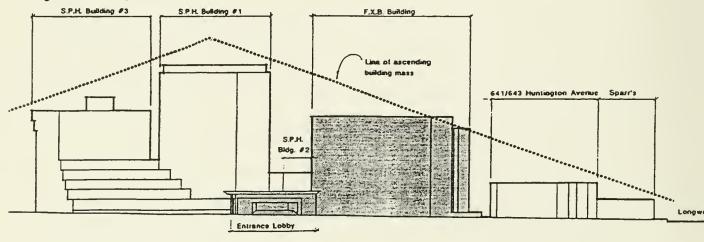
Figure 1



# ELEVATION @ HUNTINGTON AVENUE

N.T.S.

Figure 2



N.T.S

Figure 3

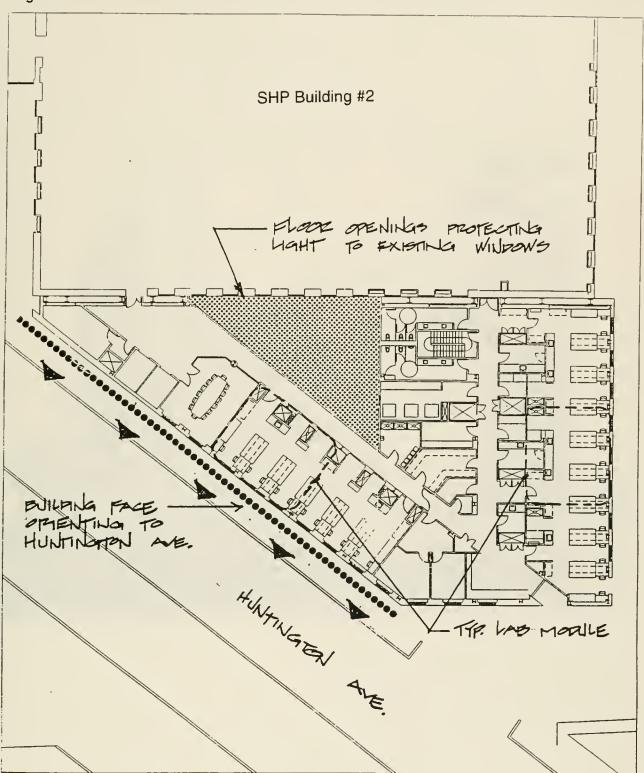
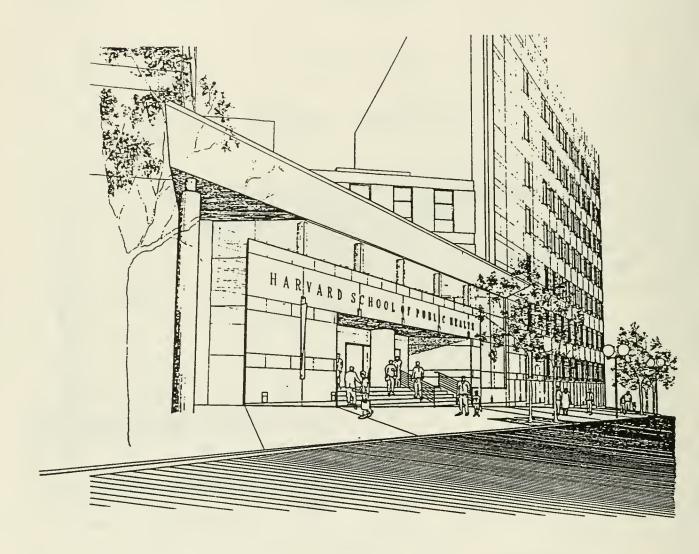
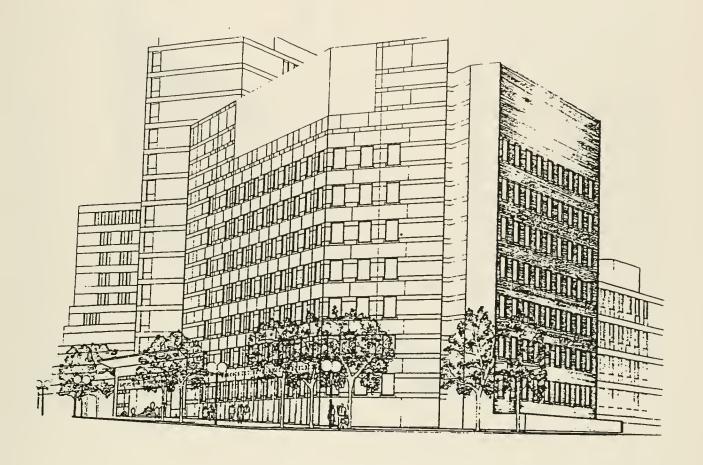


Figure 3

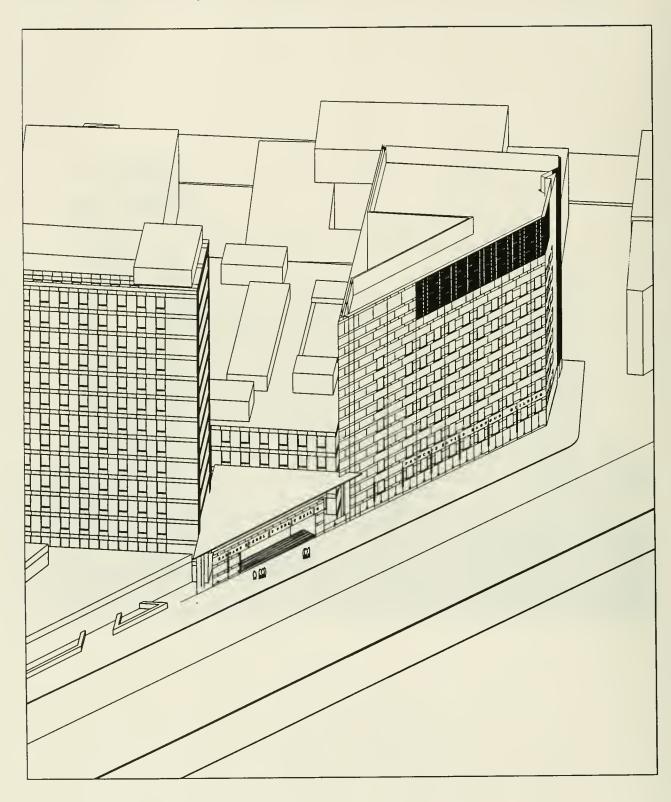
# 5. Eye Level Perspective of Project in Context



## 5. Eye Level Perspective of Project in Context



## 6. Aerial Views of Project



The following drawings may be found at a reduced scale in the Appendix, and/or will be submitted at the appropriate scale with this report:

- 7. Site Sections
- 8. Site Plan
- 9. Massing model and facade model
- 10. Architectural drawings
- 11. Design Development materials are scheduled to be completed on or before the 15 th. of December, 1993.







## C. Environmental Protection Component

## 1. Wind

#### 1.0 Introduction

An assessment has been completed to determine the effect of the Project on pedestrian level winds (PLWs) at and near the Project site.

This assessment, performed by Frank H. Durgin, P.E., considers PLWs for existing conditions and the potential effects of the Project on those PLWs. This assessment is based on:

- 1) The maps and drawings listed below and obtained from Payette Associates, Inc. (PAI), the Boston Redevelopment Authority (BRA), and maps of the Longwood Medical Area;
  - a) A map of the Longwood Medical Area produced by Medical Academic Scientific and Community Organization, Inc. (MASCO), last revised in August, 1990. This map has been modified from the original one dated September, 1981, and now gives the heights of many buildings within the vicinity of the Project;
  - b) Drawings showing floor and roof plans and elevations of the Project (PAI).
- 2) Three site visits (including one in which the wind was from the Northwest).
- 3) Many photographs taken during the site visits for this study and photographs from previous studies of the new Brigham and Women's Clinical Center, Joslin Center Expansion Facility, new Deaconess Hospital Clinical and Research Facilities, the Beth Israel Clinical Center, and, most importantly, from a just completed study for Massachusetts College of Pharmacy (all projects for which PLW assessments were completed by Mr. Durgin).
- 4) A copy of the Scoping Determination for the Project issued by the BRA.
- 5) An evaluation of the urban context of the proposed project site.
- 6) A review of the Boston wind climate.
- 7) Some of the results from an erosion type wind tunnel study of PLWs done for the Massachusetts College of Pharmacy.
- 8) The author's 22 years of experience dealing with PLWs.

The interaction of the wind with buildings and structures is very complicated and, at times, difficult to predict, especially for urban areas such as this, including a mixture of lowrise, midrise, and highrise buildings. Thus, this study must be considered as a qualitative assessment only.

#### 2.0 Location and Description of the Project and Surrounding Area (Figures 1 and 2)

## 2.1 Location and Description of the Project (Figures 1 and 2)

The Project will be located at the west corner of Huntington Avenue and the extension of discontinued Worthington Street on the north side of Huntington Avenue. The building will have seven occupied floors and a roof elevation of 165 feet. The street elevation along Huntington Avenue varies from about 40 feet at its east end to about 47 feet at the west end.

Plans for a the new Building include a new triangular one-story entrance building that will connect and provide access to existing SPH Building #1 and #2 and the Project. This entrance building will be at the west end of the Project. SPH Building #1 has 14 stories, a roof elevation of about 220 feet, and its long axis runs approximately southeasterly to northwesterly and 45 degrees to Huntington Avenue. SPH Building #2 is set back from Huntington Avenue and its long axis is perpendicular to that of SPH Building #1. The Project will occupy the space between SPH Building #1, Huntington Avenue, and discontinued Worthington Street (see figures 1 and 2).

## 2.2 The Surrounding Area (Figures 1 and 2)

The surrounding area contains a mix of lowrise, midrise, and highrise buildings (see Figure 2). On the south side of Huntington Avenue, there are only three tall buildings. All are along St. Alphonsus Street, which runs diagonally off Huntington Avenue at its intersection with Longwood Avenue and McGreevey Way. The tallest is Charlesbank Apartments (24 stories) nearest the intersection. Halfway along St. Alphonsus Street is the Back Bay Manor at 21 stories, and at the intersection with Tremont Street is the Franklin Square Apartments at 12 stories. These three buildings provide significant sheltering of the site from winds from the east and south.

The LMA is on the northerly side of Huntington Avenue. The buildings there are mostly between four and ten stories. There are a few, such as The Childrens Hospital Residence Tower at 305 foot roof elevation, Brigham and Women's Patient Tower at 220 feet, and the Thorn Building at 214 feet that are much taller. It is significant that most buildings in the near vicinity of the site are 50 to 100 feet tall except SPH Building #1, which is 15 stories and about 190 feet tall, and the SPH Building #3 at about 130 feet tall. These two buildings provide nearly total sheltering of the site from west winds.

#### 3.0 The Wind Climate

## 3.1 The Variation of Wind Speed with Height (Figure 3)

In general, the natural wind is unsteady (i.e., it is gusty) and its average speed increases with height above the ground. Figure 3 [1] depicts approximately how the average wind speed varies with height for different types of terrain. When one puts up any building, the possibility exists that the building will bring the higher speed winds at the top of the building down to ground level.

Monolithic buildings (i.e., those that do not change shape with height), if they are significantly taller than most of the surrounding buildings, almost invariably will be windy at their base. However, when there are many buildings of similar height in the area, they tend to shelter one another.

As noted above, the Project Site is nearly surrounded on three sides by buildings of similar height to the existing SPH Building #2. Thus, the site is sheltered and not windy now.

#### 3.2 Statistical Description of the Boston Wind Climate

The Project Site is located about five miles west south west of Logan Airport. Thus, the wind data from Logan Airport that is usually used to define the winds for Boston is applicable. Figure 4 depicts a wind rose for Boston. As noted in the figure, the wind rose is based on surface wind data from Logan Airport taken from 1945 to 1965. While data from 1965 to 1992 is also available, it is not believed to be as representative of the true winds in Boston, due to the many 25 to 40 story buildings that have been built in the financial district of Boston since 1965. The financial district is just one mile west of Logan Airport. The length of each line radiating from the center of the figure to the outermost crossing line is proportional to the total time the wind comes from that direction. The other lines crossing the radial lines indicate the frequency of winds less than 7.5, 12, and 19

mph.

Figure 4 shows that the winds in Boston come primarily from the northwest, west, and southwest. Figures 5 through 8 show wind roses for Boston for winter (December, January, and February), spring (March, April, and May), summer (June, July, and August), and fall (September, October, and November). These figures show that northwesterly winds tend to occur during the colder months and southwesterly winds during the warmer months. Spring and fall are transitional, but winds in the spring are stronger than those in the fall. Strong easterly winds usually occur during storms when there is precipitation.

The average wind speed at Logan Airport at 58 feet (the average height at which the data was taken) is 12.9 mph. At pedestrian height (i.e., at chest height, 4.5 feet) it is about 8 mph. The average wind speed at 58 feet at Logan Airport for each month is shown in Figure 9. Seasonally the average is 14.2 mph in the winter, 13.9 in the spring, 11.2 in the summer, and 12.3 in the fall. The fastest hourly wind for a 100 hour return period, however, is slightly faster in the spring than in the winter.

For the most part, the weather in New England is dominated by either large coastal storms (fall, winter, and spring) or the Bermuda High (summer). Typically, when a coastal storm occurs, it rains or snows for 4 to 12 hours, then it clears, and, as the storm moves to the northeast, the winds blow from the northwest for three or four days until the next weather system arrives. These storms and the northwesterly winds following them occur mostly in the fall, winter, and spring. Northwesterly winds are particularly uncomfortable in the winter, when typically they occur on cold days. The Bermuda High is generally responsible for the southwesterly winds that occur in the summer.

#### 4.0 CRITERIA

In the early 1980s, Boston established a guideline criterion for acceptable winds that is still in use. The criteria states that if the effective gust at a location exceeds 31 mph more often than once in 100 hours, the winds at that location are unacceptable. The effective gust is defined as the average wind speed plus 1.5 times the root mean square (rms) variation about the average and can be thought as a one minute gust. When many stations are considered the effective gust averages 1.38 times the average wind speed. That ratio enables one to convert the BRA guideline effective gust wind speed of 31 mph to an average wind speed of 22.5 mph.

In 1978, Melbourne [2] developed probabilistic criteria for average PLWs that accounted for different types of pedestrian activity as well as the safety aspects of such winds (see Figure 10). He defined five categories of PLWs:

- 1) Dangerous and unacceptable;
- 2) Uncomfortable for walking;
- 3) Comfortable for walking;
- 4) Comfortable for short periods of standing and sitting;
- 5) Comfortable for long periods of standing or sitting.

These criteria are not absolute (any location can have dangerous winds in a hurricane). Rather, they imply that the location would have wind speeds such that the activity suggested is possible most of the time, and would be perceived as such by most people who frequent the location. For example, the winds at pedestrian level at Logan Airport are just in Category 2 (see Figure 10), uncomfortable for walking, and are just under the BRA 31 mph effective gust wind speed guideline (converted to an average wind). Therefore, most people would perceive conditions in the open at Logan Airport as uncomfortable for walking.

In the discussion that follows, Melbourne Categories for specific wind directions will be given. Overall categories are less than or the same as the greatest of those for individual directions.

#### 5.0 Pedestrian Level Winds at the Site

#### 5.1 Introduction

In the following sections, the effects of northwesterly winter winds, southwesterly summer winds, and easterly storm winds will be discussed for existing and build conditions. The discussion will include considerations of PLWs on the sidewalks and at pedestrian entrances to all buildings along Longwood Avenue between Huntington Avenue and Avenue Louis Pasteur, along Huntington Avenue between Longwood Avenue and beyond Francis A. Countway Library of Medicine (FACLM). Also evaluated are PLWs in the walkways from Huntington Avenue to the courtyard surrounded by the FACLM, the SPH Building #3, and the most southerly of the Harvard Medical School buildings.

## 5.2 Northwest (Winter) Winds (Figures 11 and 12)

#### 5.2.1 Introduction

Northwesterly winds blow almost directly down Longwood Avenue toward Huntington Avenue. Such winds, when they are at all strong, can be very uncomfortable on a cold wintry day.

## 5.2.2 Existing Conditions for Northwesterly Winds (Figure 11)

For existing conditions and a northwesterly wind, the sidewalk and all entrances on the north side of Huntington Avenue are in the shelter of either the Medical School Employment Office, SPH Building #1, the stair between SPH Building #1 and SPH Building #2, SPH Building #2, the SPH Building #3, or the FACLM. Discontinued Worthington Street on the north side of Huntington Avenue is not windy because it is sheltered by the Harvard Police Station building which is the same height as the employment office building. The sidewalk along the south side of Huntington Avenue is also sheltered by these buildings for northwesterly winds. However, because of the great height and exposure of the Charlesbank Apartments, its entrance and the north and west corners are quite windy (high Melbourne 3). The N and W corners would be much windier, were they not undercut.

The courtyard to the northwest of the SPH Building #3 as well as the walkways entering the courtyard between the SPH Building #3 and the FACLM and between the SPH Building #3 and the most southerly of the Harvard Medical School Buildings, are quite windy (Melbourne 3).

Although northwesterly winds blow almost directly down Longwood Avenue, the sidewalks and entrances on both sides are only slightly windy (Melbourne Category 4 or less).

Figure 11 summarizes these conditions, and gives Melbourne Category numbers for all entrances and places of pedestrian traffic. The arrows indicate the local wind direction for northwesterly winds.

#### 5.2.3 Build Conditions for Northwest Winds (Figure 12)

The Project is higher than SPH Building #1, but much lower than SPH Building #2. For northwesterly winds, SPH Building #1 provides a setback for the Project and minimizes the effect of the Project on winds both upstream and downstream of the building. Thus, the addition of the Project is expected to have little or no effect on the winds along the sidewalks of Huntington Avenue and winds at the new main entrance will be in Melboume's Category 5. The winds on discontinued Worthington Street and in the courtyard to the northwest of the SPH Building #3 and the two entrances to the courtyard next to the Project, are not expected to be changed.

Two areas where the winds may be affected will be at the entrance to the Charlesbank Apartments and at its north and west corners, and on the sidewalks in front of the low rise appartment across Huntington Avenue from the Project. The effect in both areas will be to reduce the winds there due to the additional sheltering effects of the SPH Building #3 for northwesterly winds.

There will be only two changes in Melbourne Category from existing conditions. Two stations near the apartment building across Huntington Avenue will change from 4 to 5 (see Figure 12).

## 5.3 Southwest (Summer) Winds (Figures 13 and 14)

#### 5.3.1. General

The prevailing winds in the summer are from the southwest. Southwest winds blow across and down discontinued Worthington Street and approach the site along and across Huntington Avenue. They are approximately perpendicular to Longwood Avenue. There are several buildings near the site that are taller than the proposed Project. There are the Charlesbank Apartments and Back Bay Manor Apartments along St. Alphonsus Street on the south side of Huntington Avenue, and the SPH buildings on the north side. These buildings affect winds at and near the site for southwest winds. The Charles Bank and Back Bay Manor Apartments cause a southwest wind to be accelerated between them and the taller SPH buildings. The SPH buildings provide some sheltering at the site for the existing conditions and will continue to shelter the proposed Project. It should be borne in mind that, on hot summer days, some windiness may be desirable.

#### 5.3.2 Existing Conditions (Figure 13)

The SPH Buildings on the north side of Huntington Avenue are taller than those on the south side and thus tend to accelerate and deflect southwest winds along the north side sidewalks. Currently, this acceleration is minimized because, above the first story, none of the facades are parallel to Huntington Avenue. Thus, the current main entrance to SPH Buildings #1 and #2 is not windy at all, and the sidewalk on the north side of Huntington Avenue is not particularly windy.

Except opposite the Project site (see Figure 13), the sidewalks on the south side of Huntington Avenue are not windy because they are sheltered by the various buildings along and set back from the south side of the avenue. For southwest winds the windiest place in the area probably is the entrance to the courtyard between the SPH Building #3 and the FACLM (Melbourne 3).

Most of the entrances and sidewalks along Longwood Avenue are sheltered from southwest winds. However, because the Massachusetts College of Art Building at the corner of Longwood Avenue is significantly taller than the Harvard Medical School Employment Office building, it is quite windy near the corner of Longwood Avenue and Palace Road (Melbourne 3).

Finally, for southwest winds, the north corner of the Charlesbank Apartments is quite windy, and for the more westerly of these winds, the main entrance is probably windy.

## 5.3.3 Build Conditions (Figure 14)

For build conditions, the Project will tend to smooth out the building facades along the north side of Huntington Avenue, especially at street level. Thus, winds along the north side sidewalk will be increased, and the proposed new entrance will be much windier than the existing one (going from Melbourne 5 to 3).

Winds along the sidewalk on the south side of Huntington Avenue will be unaffected except in front of the apartment opposite the Project site where the winds increase from Melbourne category 5 to 4. Winds at the entrance to the courtyard will remain the same.

Winds at the west corner of the Charlesbank Apartments and at its main entrance will be increased slightly.

A recent erosion study of winds near the proposed new College of Pharmacy Building found significant windiness at the corner of Longwood Avenue and discontinued Worthington Street/Palace Road for southwest winds. It seems likely that the Project may provide some sheltering for that corner and thus reduce those winds, at least slightly.

#### 5.4 Easterly Storm Winds (Figures 15 - 20)

#### 5.4.1 Introduction

Easterly winds occur about one-third of the time. Light easterly winds occur as a storm starts or in the summer as a sea breeze. During the first 4-12 hours of a typical storm, it rains or snows depending on the temperature, and the wind is from the northeast or southeast depending on whether the center of the storm passes to the east or west of the city.

Since for strong easterly winds, it will generally be raining or snowing, and people expect windiness, the emphasis in the following discussions will be on entering or exiting the various buildings. Also, because easterly winds cover such a wide range of wind directions, the discussion covers northeast, east, and southeast winds separately in that order.

## 5.4.2 Existing Conditions for Northeast Winds (Figure 15)

Northeast winds blow almost directly down Palace Road and discontinued Worthington Street toward Huntington Avenue (see Figure 15). Thus the sidewalks on the north side of Huntington Avenue are sheltered except at the intersection with Worthington Street (Melbourne 4).

The sidewalks on the south side of Huntington Avenue would be quite windy if there were a solid phalanx of buildings there, but there is only one building just opposite the site, and the sidewalk in front of it is currently probably quite windy for northeast winds (Melbourne 3).

As is the case for southwest winds (northeast winds are the inverse), the main entrance to the Charlesbank Apartments will be windy and as well the north corner of the building (high Melbourne 3).

Finally, it seems likely that the northeast entrance to the courtyard is probably quite windy for northeast winds (Melbourne 3)

## 5.4.3 Build Conditions for Northeast Winds (Figure 16)

The proposed Project will be much taller than the 50 foot buildings upstream of it for northeast winds. Thus it will provide additional sheltering for the sidewalks along the north side of Huntington Avenue, except at the intersection with Worthington Street where the winds coming out of discontinued Worthington Street will be increased somewhat (from Melbourne 4 to 3). The winds at the new main entrance to the School of Public Health will be in Melbourne 5.

The winds at the northeast entrance to the courtyard will be unaffected (Melbourne 3).

The winds along Longwood Avenue will not be affected by the addition of the Project.

On the south side of Huntington Avenue, the winds at the main entrance to the Charlesbank Apartments and

at its north corner will be increased slightly (high Melbourne 3). Also, because of the height of the Project, winds in front of the apartment opposite the Project will be increased from Melbourne 4 to 3 at one location (see Figures 15 and 16).

## 5.4.4 Existing Conditions for East Winds (Figure 17)

East winds blow almost directly down Huntington Avenue from Longwood Avenue toward the discontinued Worthington Street intersection (see Figure 17). The slight quartering of the east wind with respect to Huntington Avenue means that the sidewalks on the South side of Huntington Avenue are sheltered. With the juxtaposition of the various buildings along the north side of Huntington Avenue, the north side sidewalk is probably not very windy (Melbourne 4).

As is the case for northeast winds, the winds at the north corner of the Charlesbank Apartments are probably significant (high Melbourne 3), but those at its main entrance are modest due to sheltering by the building itself (Melbourne 5).

For east winds, the winds along Longwood Avenue are modest (Melbourne 4 or 5).

Again winds at the northeast entrance to the courtyard will be strong (Melbourne 3).

#### 5.4.5 Build Conditions for East Winds (Figure 18)

The only significant changes in windiness due to adding the Project for east wind will be at the east corner of the Project at the intersection of Huntington Avenue and discontinued Worthington Street, where winds will be increased from Melbourne 4 to 3, at the new main entrance to the School of Public Health where the increase will be from Melbourne 5 to 3, and at the northeast entrance to the courtyard where winds will be reduced form Melbourne 3 to 4 (Compare Figures 17 and 18).

#### 5.4.6 Existing Conditions for southeast Winds (Figure 19)

Southeast winds blow almost directly down Longwood Avenue from the McGreevey Way side of Huntington Avenue. As for northwest winds, the current main entrance to SPH Buildings #1 and #2 is not windy at all, and the sidewalk on the north side of Huntington Avenue is not particularly windy. The windiest place for southeast winds is the northeast entrance to the courtyard between the SPH Building #3 and FACLM (Melbourne 4).

Again, the sidewalks on the south side of Huntington Avenue are not windy because they are sheltered by the various buildings along and set back from the south side of the avenue.

For southeast winds, neither the north nor west comer of the Charlesbank Apartments is windy, and the main entrance is completely sheltered. Also, winds along the sidewalks and at entrances on Longwood Avenue are quite modest (Melboume 4 or 5).

## 5.4.7 Build Conditions for Southeast Winds (Figure 20)

The only significant effect of adding the Project on windiness due to southeast winds will be at the east corner of the Project at the intersection of Huntington Avenue and discontinued Worthington Street where winds will be increased from Melbourne 4 to 3 (Compare Figures 19 and 20).

#### 6.0 SUMMARY AND CONCLUSIONS

An assessment has been made to determine the effect of adding the Project to the existing complex of School of Public Health Buildings on PLWs at and near the new building. The effects of adding the Project on northwest winter winds, southwest summer winds, and easterly storm winds has been considered. The Project has only minor effects on any winds more than half a block away or across Huntington Avenue. No location where winds are affected by the addition of the Project will have winds that exceed the BRA guideline wind speed.

For northwest winter winds the addition of the proposed Project will have little or no effect on winds near the building. The new main entrance will be in a very sheltered area (Melbourne 5).

For southwest summer winds the Project will affect the winds in several places. The new main entrance will be much windier than the existing one (Melbourne 5 to 3); the winds along the sidewalk beside the building will be faster than those there now (low to high Melbourne 4); and there will be accelerated winds around the east corner of the Project at the intersection of Huntington Avenue and discontinued Worthington Street (Melbourne 4 to Melbourne 3).

For easterly storm winds (northeast, east, and southest), the winds at the new main entrance will be stronger than now for both east and southeast winds (Melbourne 5 to 4 or 3), winds along the sidewalk in front of the Project will be increased for northeast and east winds (both in Melbourne 4), and winds at the intersection of Huntington Avenue and discontinued Worthington Street near the east comer of the Project will be increased from Melbourne 4 to 3 for nearly all easterly winds.

#### 7.0 REFERENCES

- 1) Davenport, A.G., and Isyumov, N., "The Application of the Boundary Layer Wind Tunnel to the Prediction of Wind Loading", Proceedings of Intl. Seminar on Wind Effects on Buildings and Structures, Ottawa, Canada, September, 1967.
- 2) Melboume, W.H., "Criteria for Environmental Wind Conditions", Journal of Industrial Aerodynamics, Vol. 3, 1978, pp. 241-249.

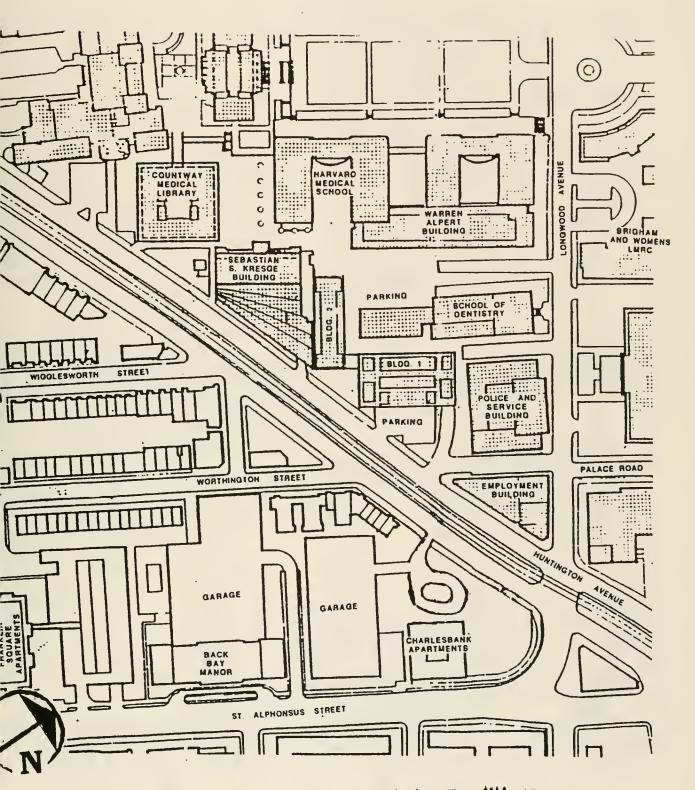


Figure 1 Map of Area for Existing Conditions

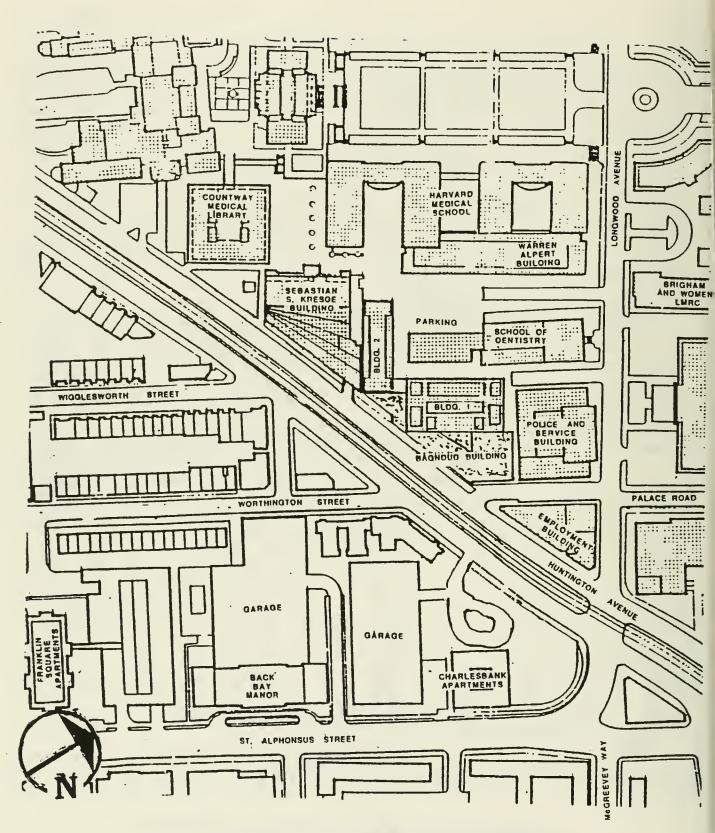


Figure 2 Map of Area for Build Conditions

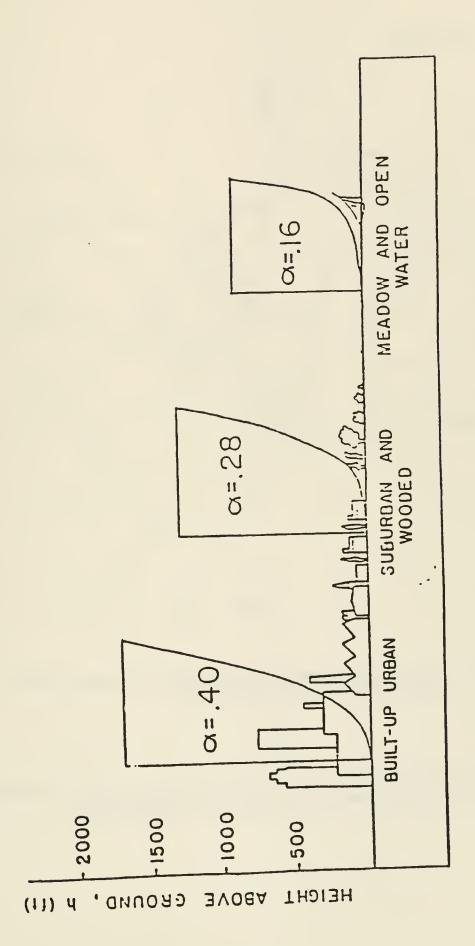


Figure 3 Types of Earth's Boundary Layer after Davenport [1]

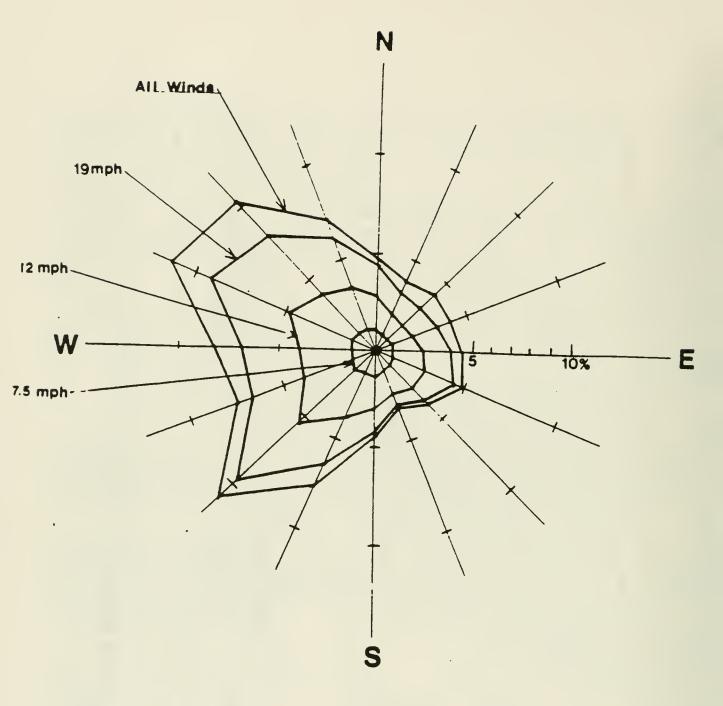


Figure 4 Annual Wind Rose for Boston Based on Surface Data from Logan Air Field 1945-1965

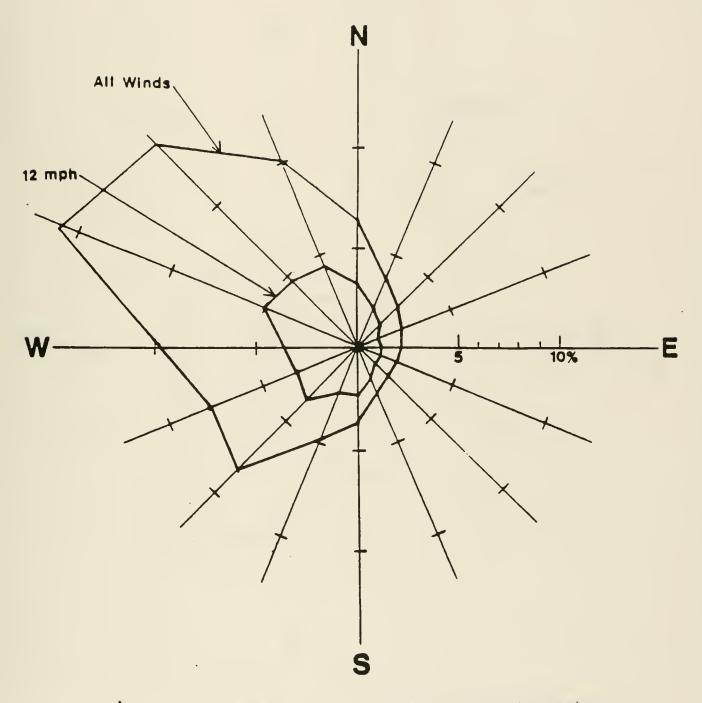


Figure 5 Winter (December, January, February) Wind Rose for Boston based on Surface Data from Logan Air Field 1945-1965

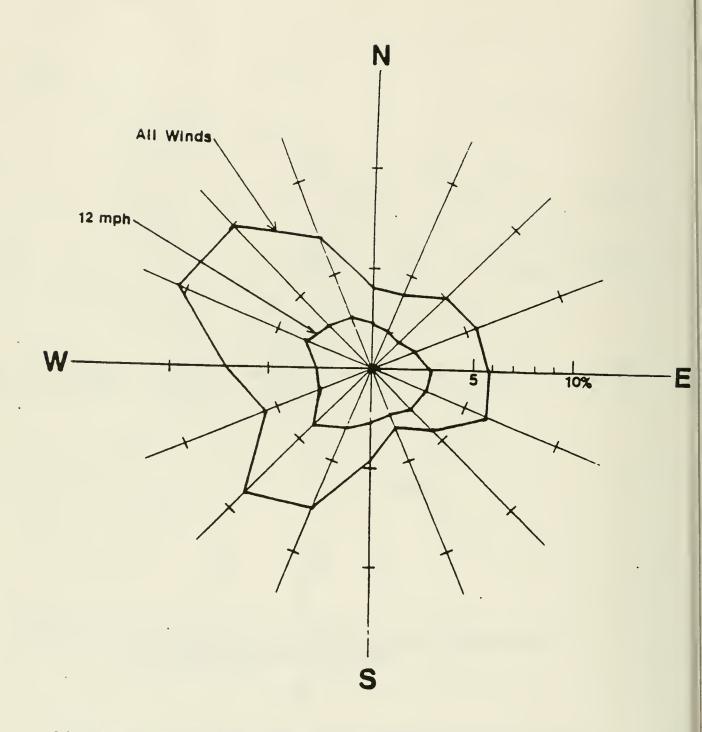


Figure 6 Spring (March, April, May) Wind Rose for Boston based on Surface Data from Logan Air Field 1945-1965

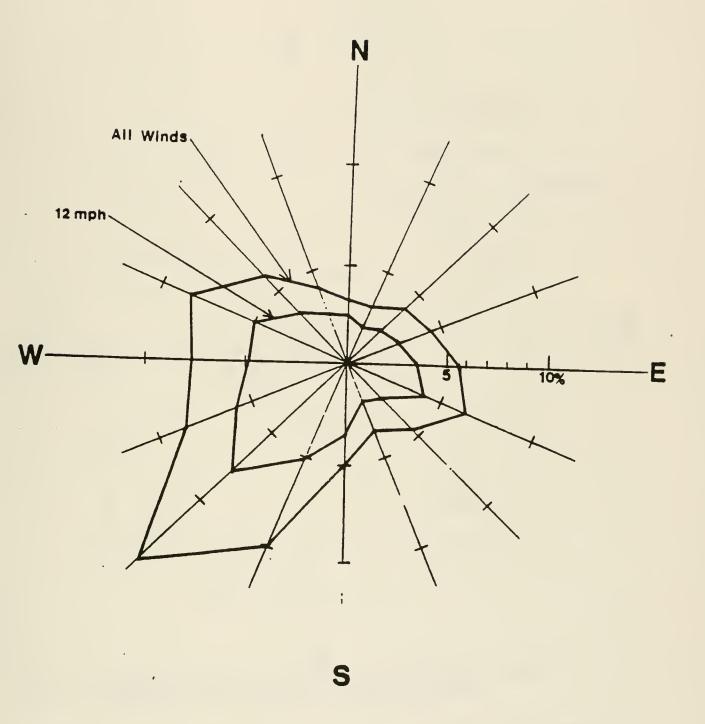


Figure 7 Summer (June, July, August) Wind Rose for Boston based on Surface Data from Logan Air Field 1945-1965

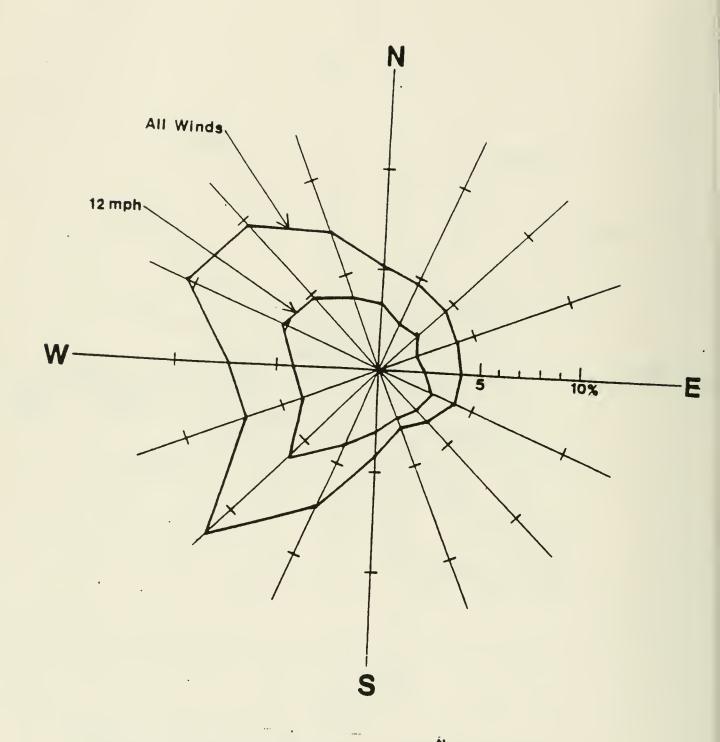


Figure 8 Fall (September, October, November) Wind Rose for Boston based on Surface Data from Logan Air Field 1945-1965

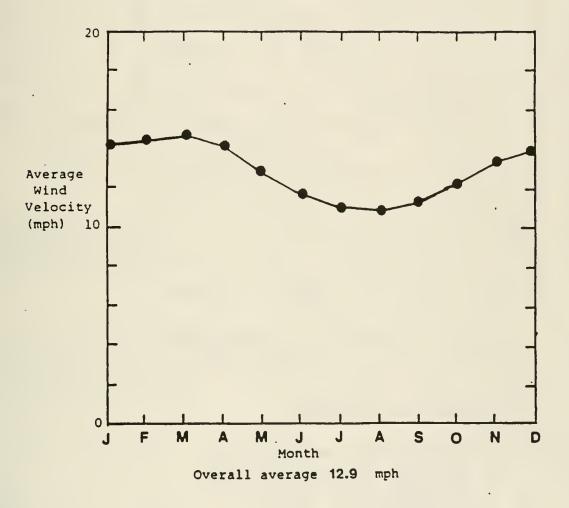
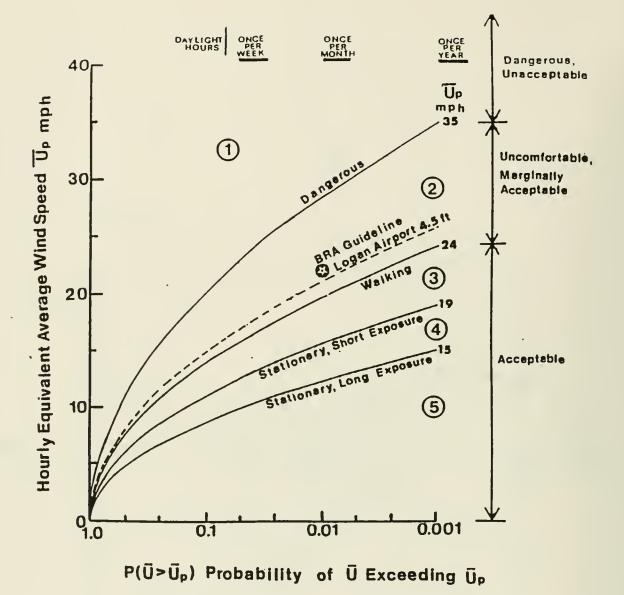


Figure 9 Average Wind Speed for Boston for each Month, based on Surface Data from Logan Air Field 1945-1965



- Melbourne's Category
  - 1 Unacceptable and dangerous
  - 2 Uncomfortable for walking
  - 3 Acceptable for walking
  - 4 Acceptable for short periods of standing or sitting
  - 5 Acceptable for long periods of standing or sitting

Figure 10 Melbourne's Criteria for Hourly Mean Wind Speeds

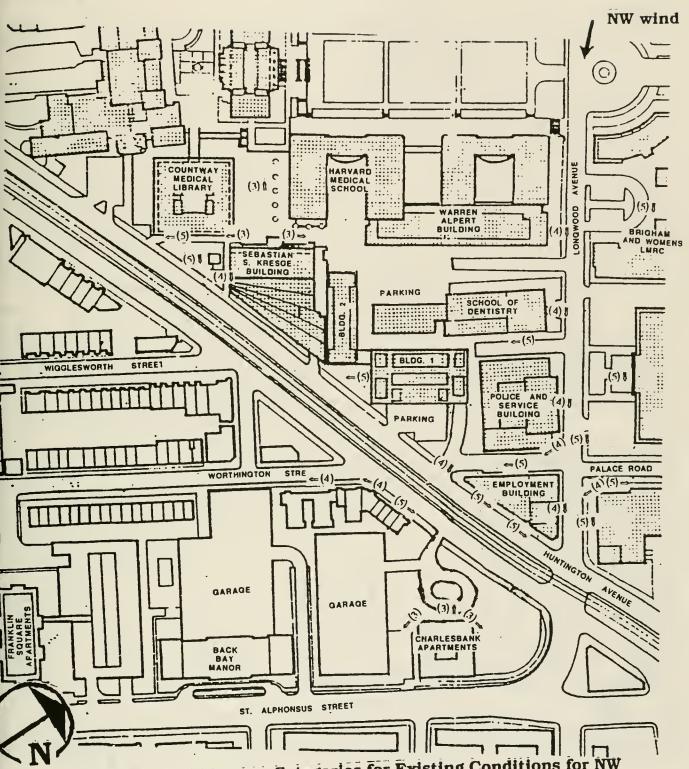


Figure 11 Melbourne Categories for Existing Conditions for NW Winds

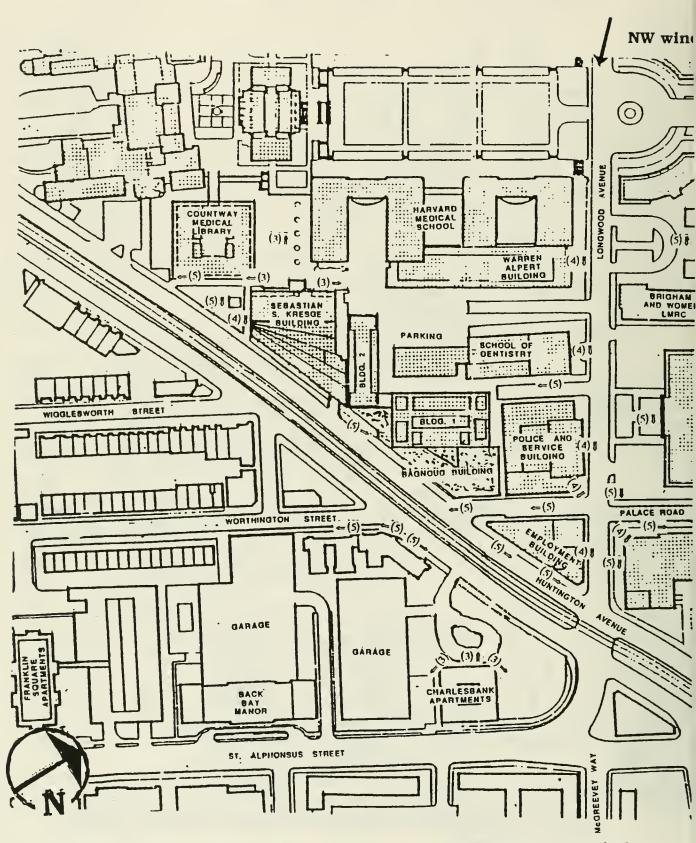


Figure 12 Melbourne Categories for Build Conditions for NW Winds

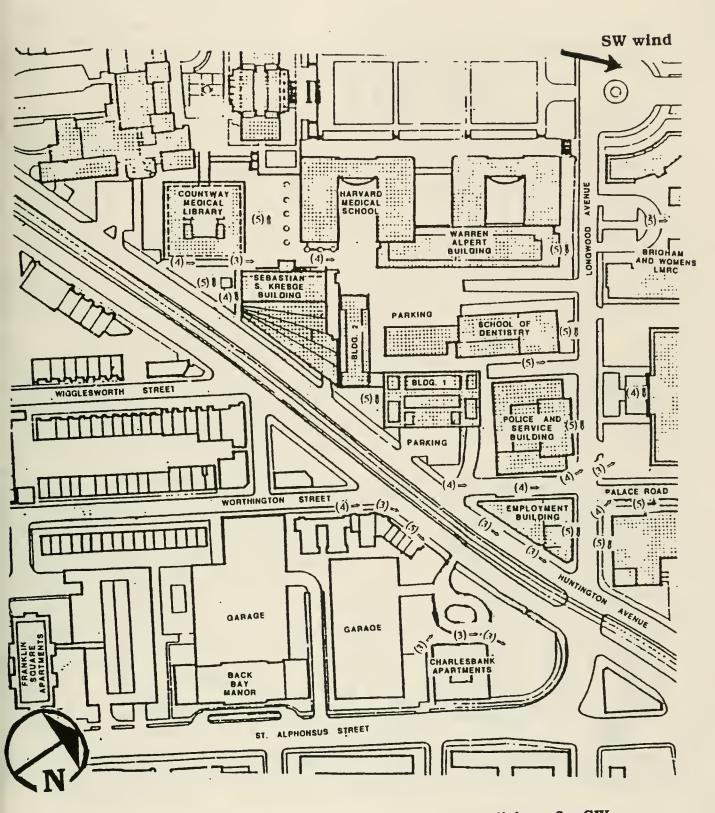


Figure 13 Melbourne Categories for Existing Conditions for SW Winds

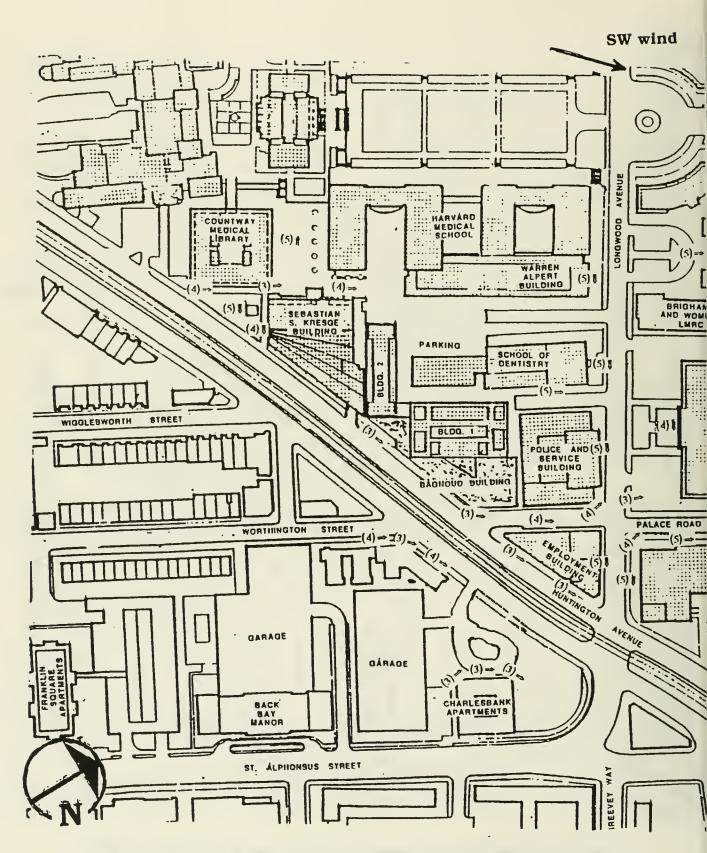


Figure 14 Melbourne Categories for Build Conditions for SW Winds

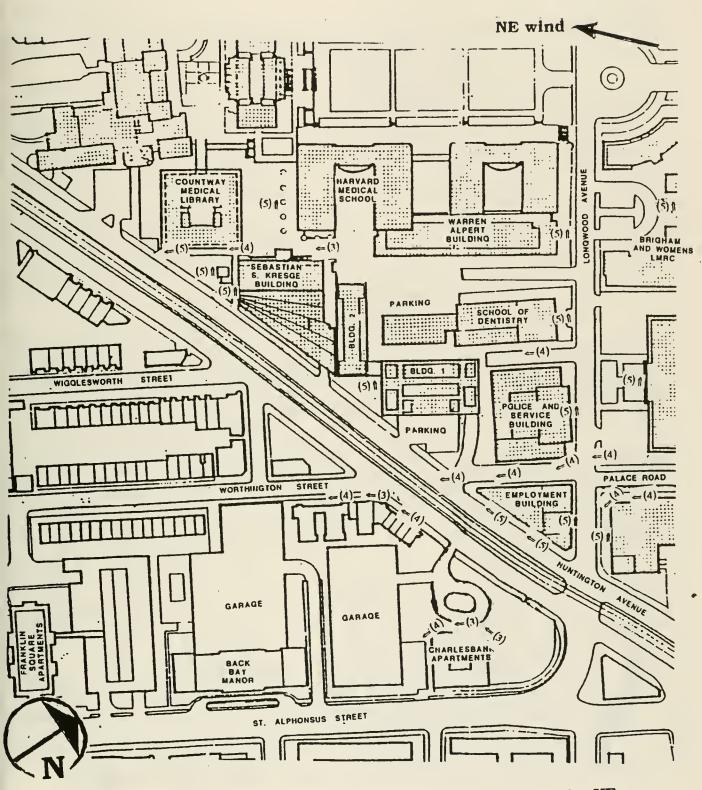


Figure 15 Melbourne Categories for Existing Conditions for NE Winds

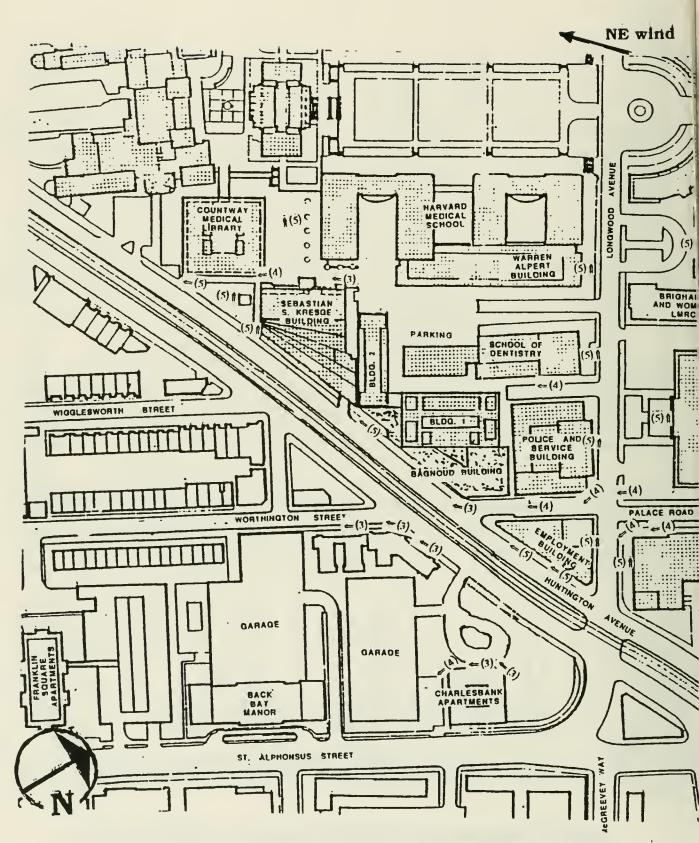


Figure 16 Melbourne Categories for Build Conditions for NE Winds

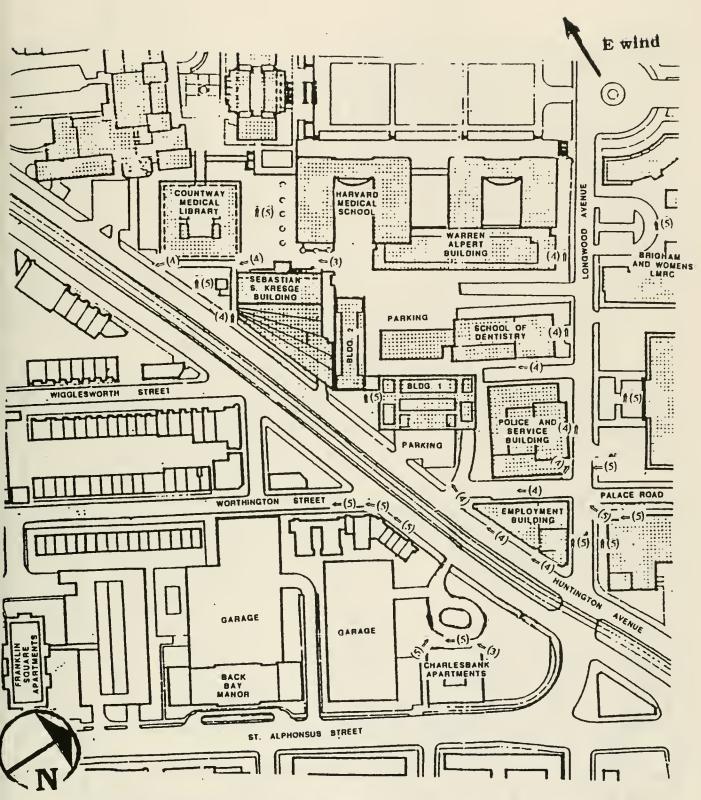


Figure 17 Melbourne Categories for Existing Conditions for E Winds

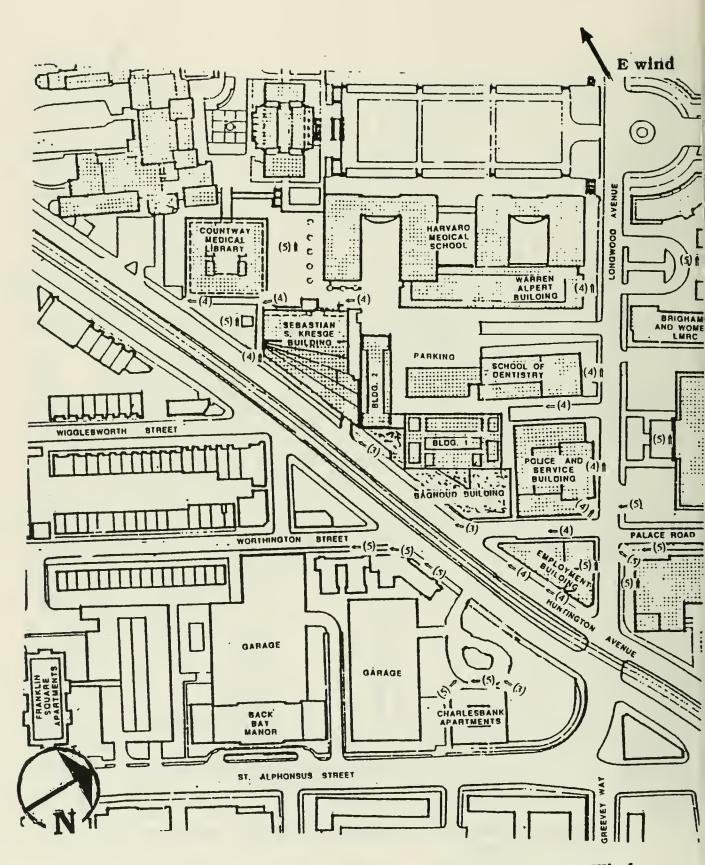


Figure 18 Melbourne Categories for Build Conditions for E Winds

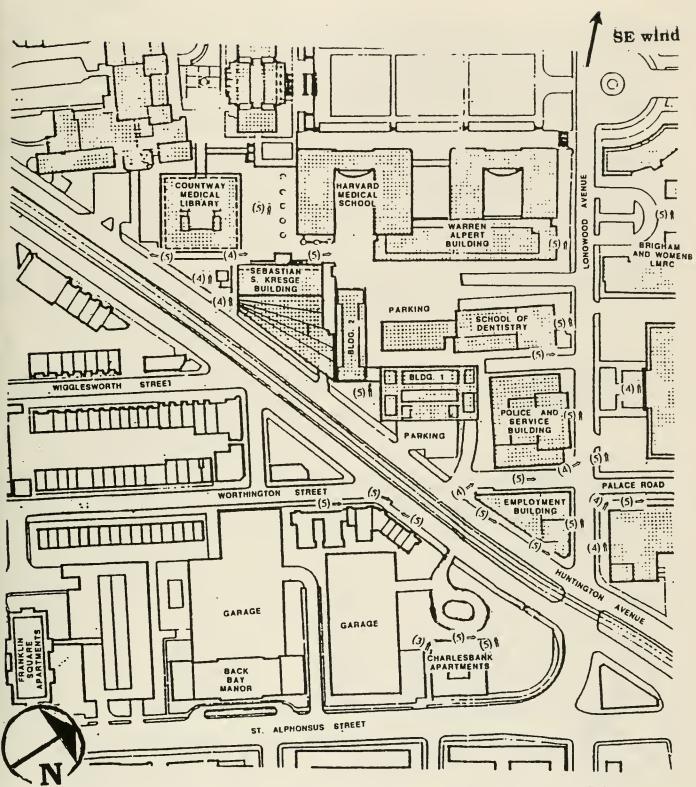


Figure 19 Melbourne Categories for Existing Conditions for SE Winds

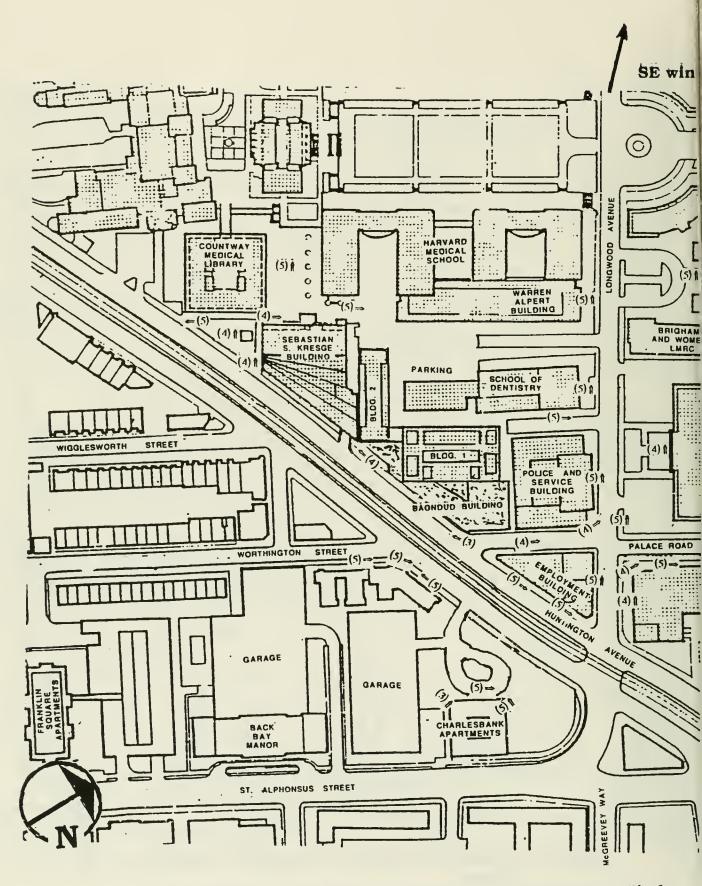


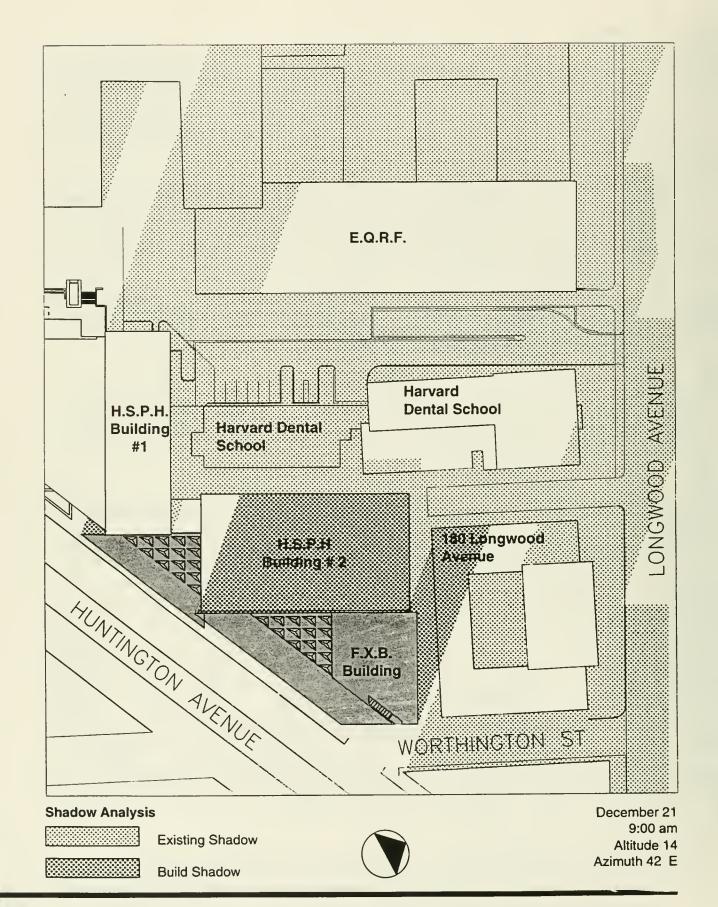
Figure 20 Melbourne Categories for Build Conditions for SE Winds

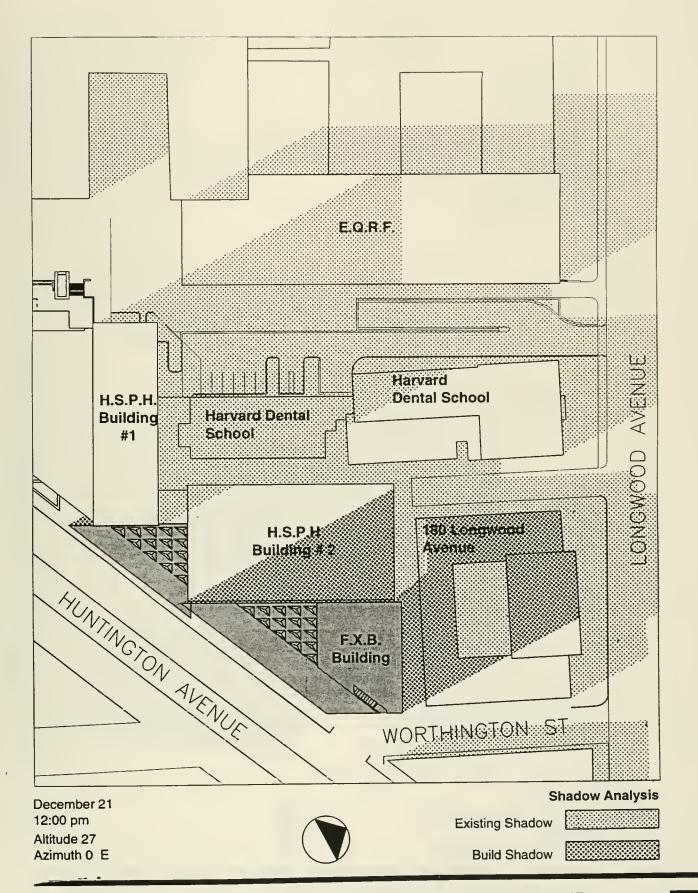
# 2. Shadow

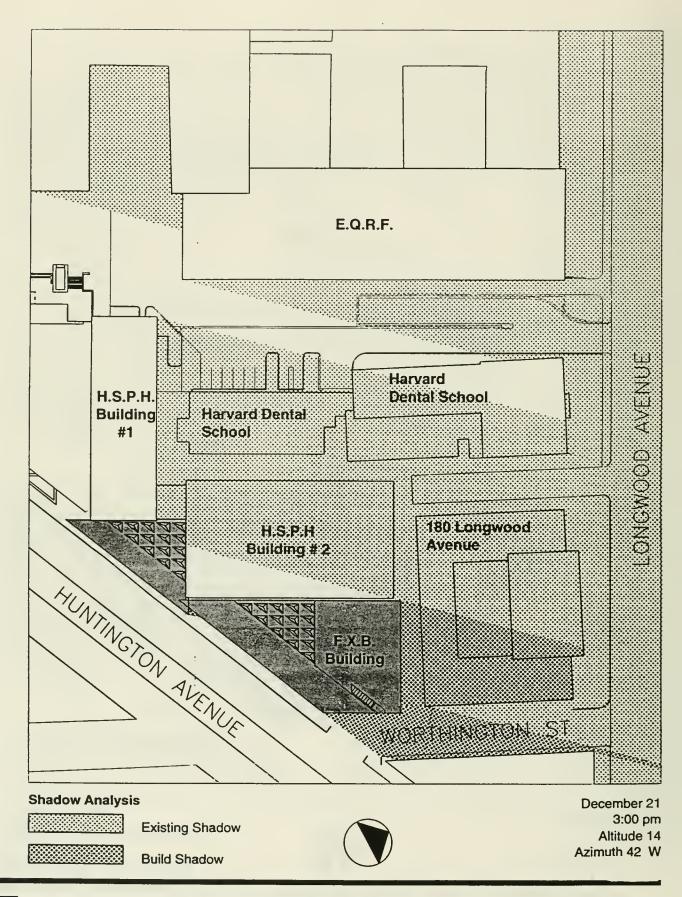
Shadow diagrams have been created by projection of sun angles (azimuth and altitude) from both existing and proposed buildings on to the surrounding context. Shadow diagrams are provided for 9:00 A.M., 12:00 noon, and 3:00 P.M. for the vernal equinox, summer solstice, autumnal equinox, and winter solstice. The shadow diagrams for the autumnal equinox vary from the vernal equinox due to consideration of daylight savings time. Shadows from existing buildings are shown in a light grey tone; shadows from the proposed building are shown in a darker grey tone.

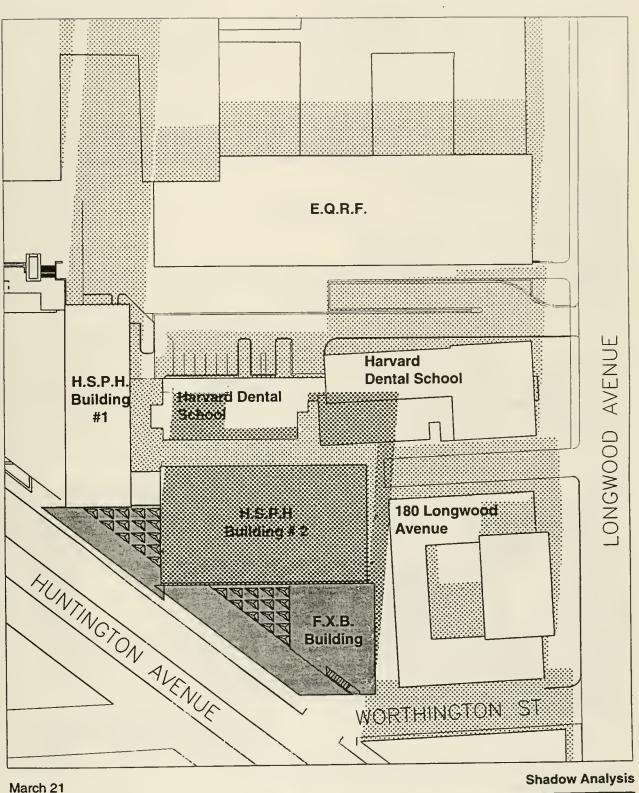
Shadow diagrams have been provided to depict both existing shadows, as well as the incremental shadow impact created by the addition of the Project. Due to the orientation of the existing School of Public Health Buildings, shadows will not have an impact on the sidewalk along Huntington Avenue. Generally, the Project shadows will be cast onto the roofs of adjacent buildings; School of Public Health Building #2 or 180 Longwood Avenue. The most extreme shadow pattern on the site is created by the existing School of Public Health Building #1 and will not be surpassed by the Project.

In order to enhance access to daylight for the occupants of School of Public Health Building #2, the Project includes interior floor openings, which maintains light to existing windows on the east face of the building. Also, skylights on both the Entrance Lobby and the interior floor openings will be detailed to "catch" light and reflect it down to the floor of both spaces.

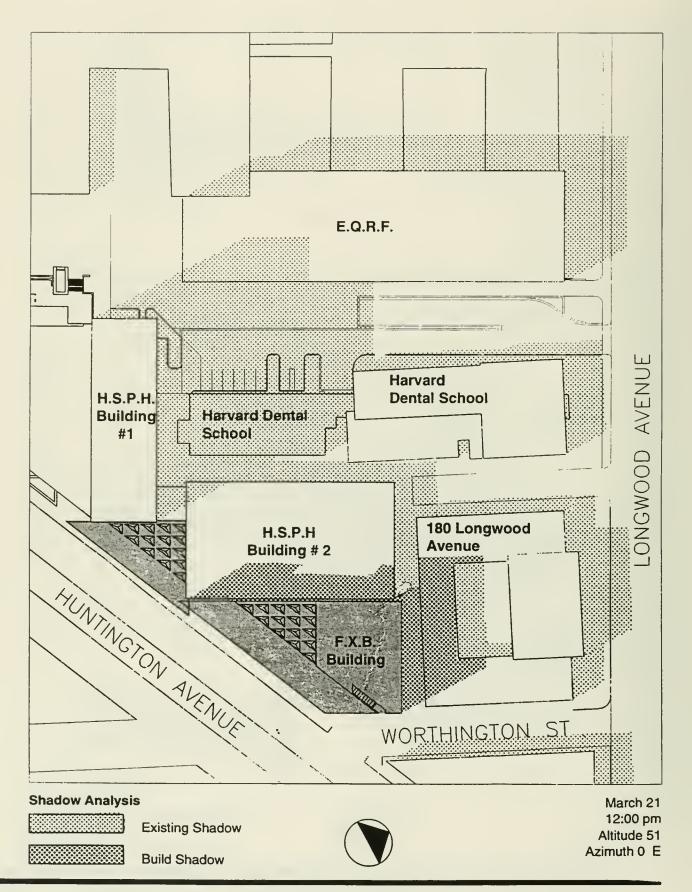


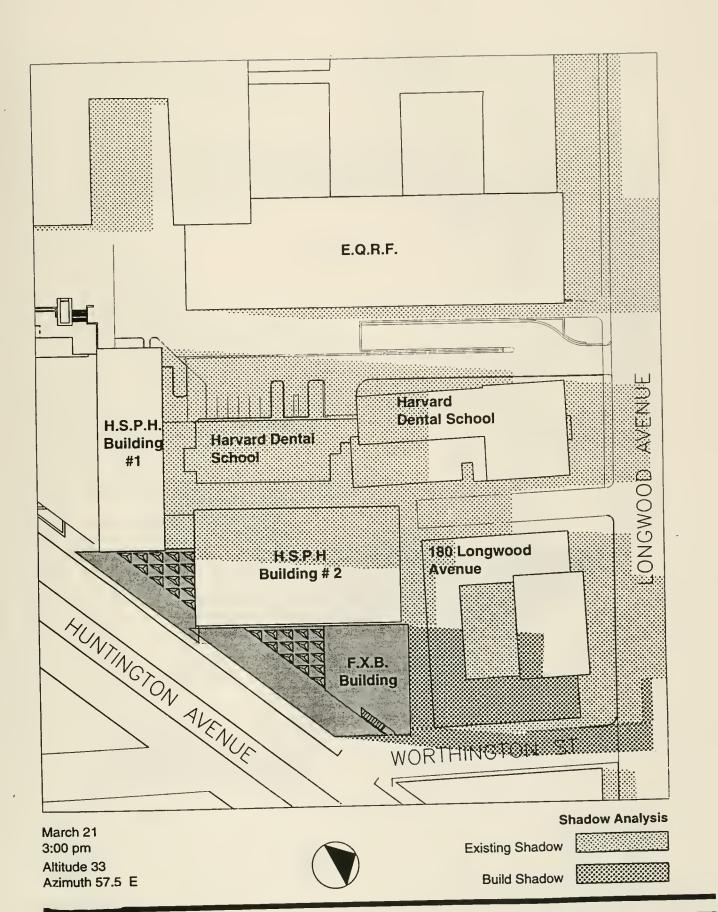




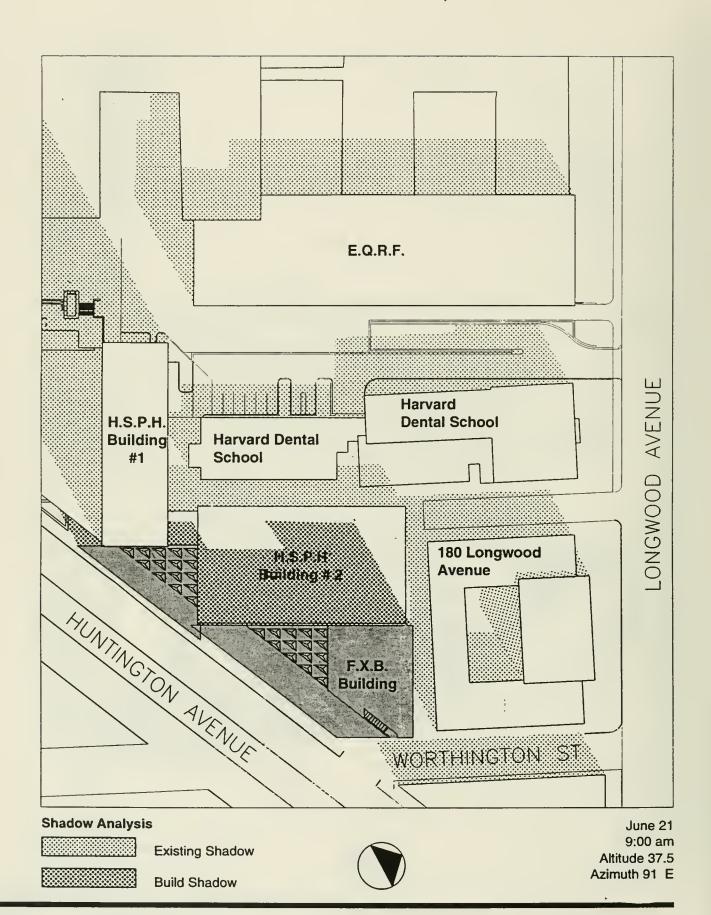


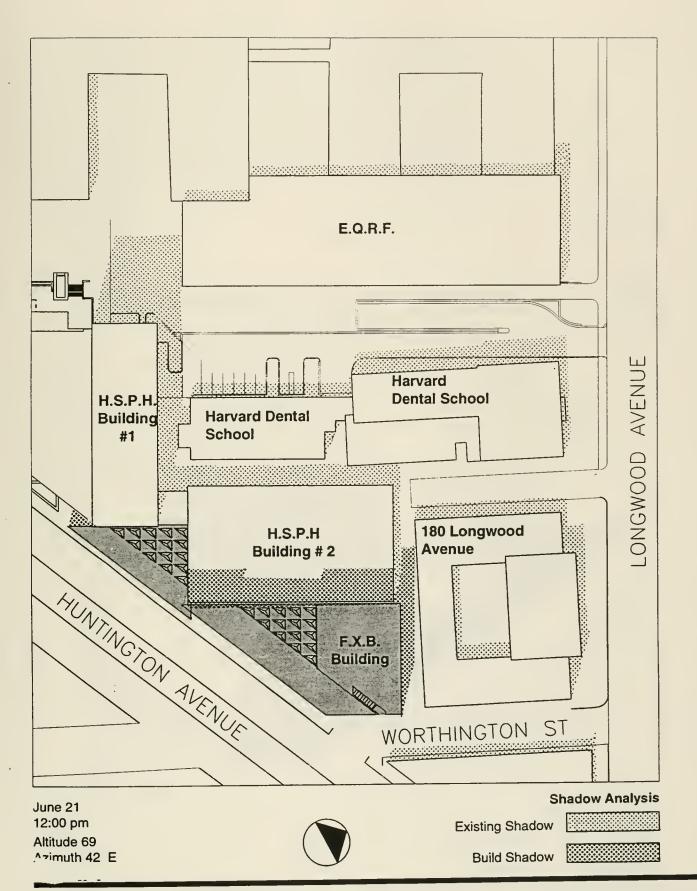
**Existing Shadow Build Shadow** 

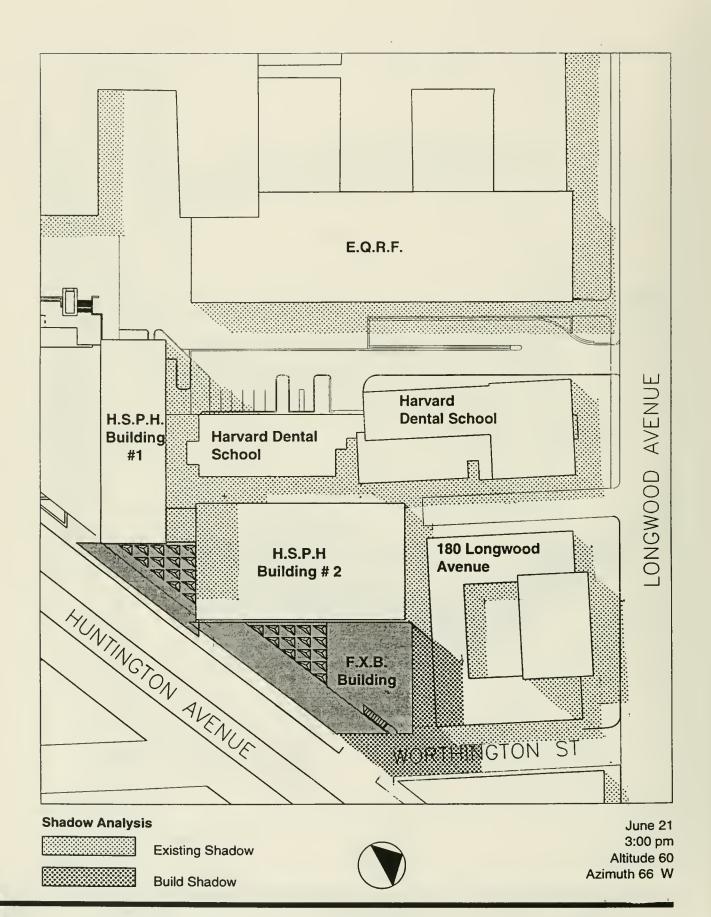


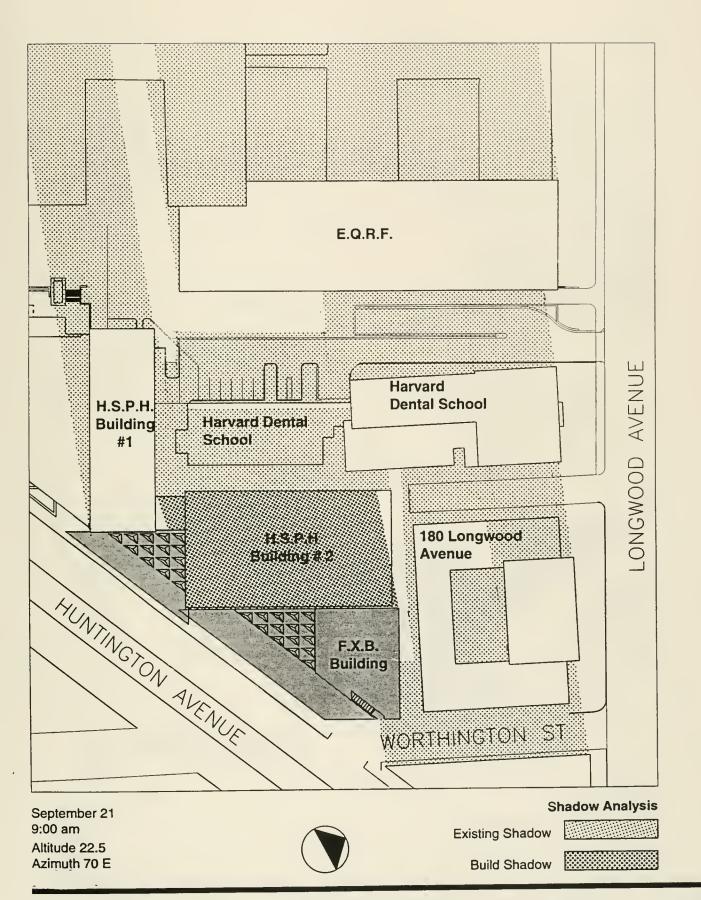


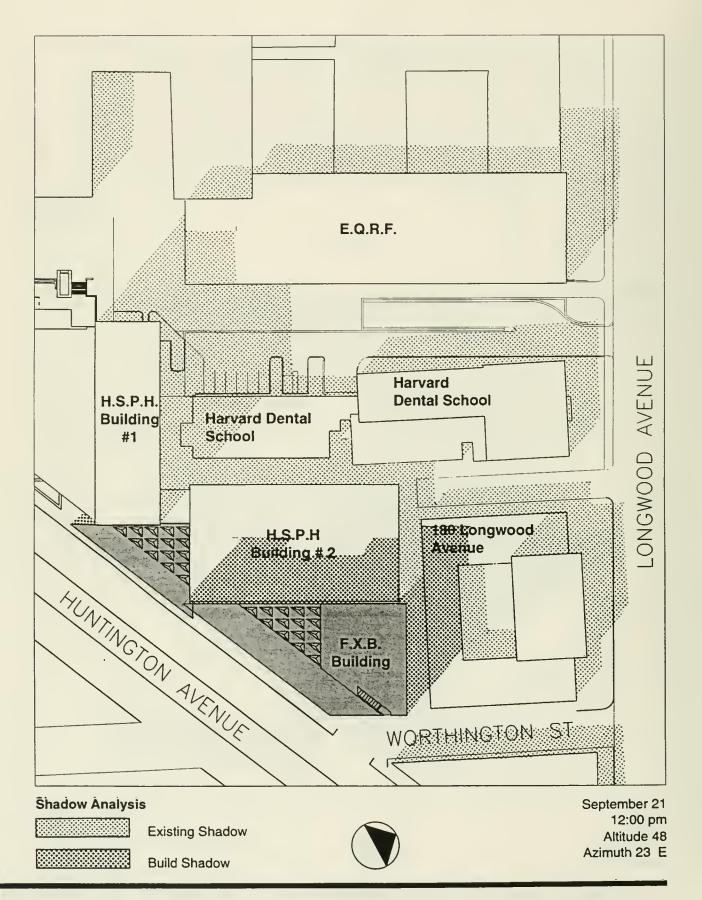
V-C 15

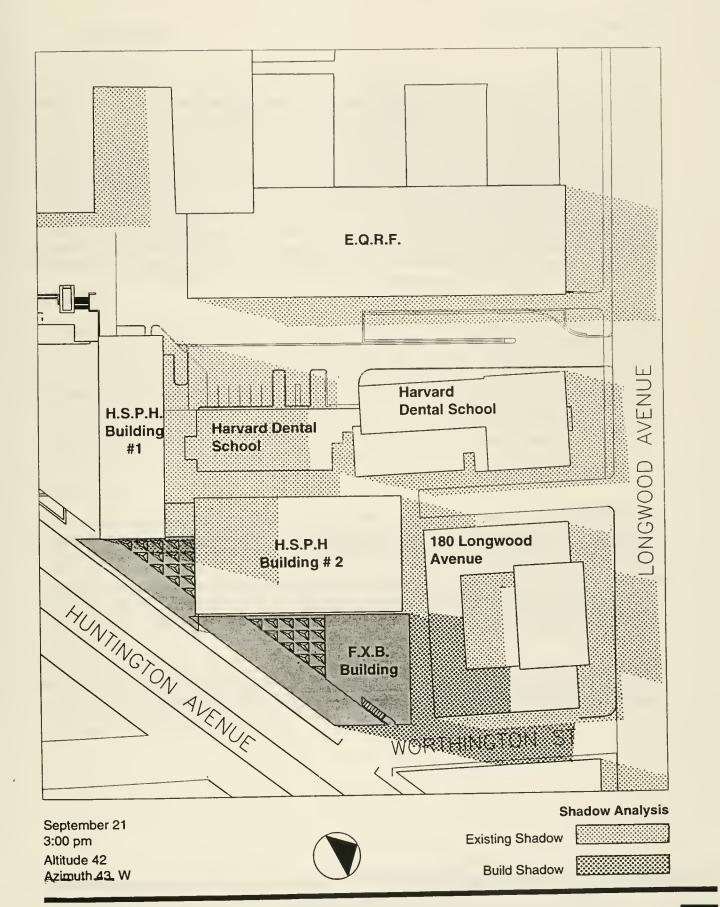












# 3. Daylight Analysis

## 3.1 Methodology

The BRADA daylighting analysis program was used to evaluate three alternative conditions: the Project, a hypothetical building filling the allowable zoning envelope, and existing conditions for the site. In all cases, the "viewpoint" for the evaluations was a point at pavement level at the approximate centerline of Huntington Avenue (50 feet from the building facade) and centered on the width of the proposed facade (as projected onto Huntington Avenue). For the Project, dimensions were taken from the PAI schematic design documents issued 5 April 1993. The zoning envelope was based on a setback formula of (height + length) ÷ 6, with a 24.5 feet. allowance for the first two floors. Due to the non-rectangular site, existing surrounding buildings (which are to remain) within the projected width of the site have a significant impact on the overall sky obstruction even with the Project in place; therefore for accuracy of comparison they were included in the analyses for all three cases. Also, in all three cases, average reflectances of the buildings were set at 45%, a typical value for common building facade materials and probably conservative for the proposed precast finish. Where building facades were not parallel to the street, buildings were approximated using a series of planes parallel to the street to build up their volumes.

#### 3.2 Results

Calculated obstructions were:

- Existing Surrounding Buildings (site vacant): 22.2%
- Permissible Zoning Envelope: 60.5%
- Proposed Building: 52.3%

Refer to detailed BRADA input and output files (see Appendix)

#### 3.3 Discussion

The smaller sky obstruction of the Project in comparison with the zoning envelope is due to the low overall height of the new Entrance Lobby portion.

BRADA really estimates sky obstruction rather than daylight obstruction. Since, under typical weather conditions, much more daylight comes from the sunny portion of the sky, and since the site is north and west of the Huntington Avenue "viewpoint," the actual daylight obstruction will typically be less than the calculated values.

While this obstruction analysis considers a viewpoint in the street, it's worth noting that the Project design, with its skylighted atrium, makes efforts to preserve daylight access for users of the adjacent existing lab building, as well as to provide daylighted interior spaces for users of the new building.

# 4. Solar Glare

# 4.1 Methodology

To analyze solar glare from the glazing and other specular building materials of the Project, a scale model of the Project and its surroundings was constructed, using materials with reflectances representative of the real building materials. The majority of the facade is a buff colored precast, a very non-specular material represented by off-white museum board. The granite base was represented by a darker colored board. The surrounding buildings are also made of light colored materials and were similarly represented using light colored model materials. Mylar was used to represent the reflectivity of the windows and brushed aluminum was used to simulate the mechanical penthouse at the top of the building. Using a sun peg diagram, the model was tested during a typical day for each season (January 21 was used to represent a typical winter day, March 21 to represent a typical spring/fall day and July 21 to represent a typical summer day) at 2-hour intervals. Visual inspection was made for each day and time from the viewpoint of a driver on Huntington Avenue. A photograph was taken to document each condition.

#### 4.2 Results

Reflected sunlight of greatest concern for Huntington Avenue drivers is that at angles more or less parallel to the Avenue and at relatively low altitude, roughly 30 degrees or less from horizontal. Since the reflecting surfaces (windows, etc.) are vertical, these angles cannot occur at mid-day except in the winter months when the sun is low. Due to the east south east orientation of the main facade, morning sun tends to be reflected perpendicular to the Avenue (where it is not as obtrusive) and except in winter, the Huntington Avenue facades fall into shadow by mid to late afternoon. The smaller facade which faces east north east causes reflections which are more parallel to the roadway during the early morning hours of all seasons. However, most of the time the angle is not parallel enough to the roadway to be of concern for the driver. This leaves only a few times of concern, primarily winter afternoons.

#### 4.3 Discussion

In our model simulation, the winter afternoon glare is heightened by the material used to represent the exterior skin of the mechanical penthouse. Initially this material was proposed to be satin aluminum. Currently, a less reflective, paint-grade metal is being considered, which should greatly reduce specular reflection. In addition, the project team is studying different options of detailing the screen, (such as providing members to give some vertical relief to the facade) which will further reduce the direct glare from this material. It should also be noted that during the time of day when glare from this surface is the greatest, drivers will be experiencing direct glare from the sun and will likely be using protective measures such as sun glasses or an automobile visor already, and should be anticipating glare from the same general direction.

Using light colored building facade materials which are similar to the surrounding materials also minimizes visual impairment, because it reduces the contrast between the Project and its adjacent neighbors. Additionally, the Project will provide screening for an existing source of glare; from the windows of the SPH Building #2, 665 Huntington Avenue.

# 5. Air Quality a- Vehicular

As discussed in the Trip Generation section of the transportation Evaluation, the Project is expected to generate a maximum of 50 daily round trips or 100 one-way vehicle trips. This number of new trips into the LMA is very small in comparison to the existing traffic conditions in the area. Consequently, the impacts on air quality resulting from this small number of additional vehicle trips will be insignificant.

Is should be noted that the elimination of the loading dock on Huntington Avenue just south of the intersection of Huntington Avenue and Longwood Avenue is expected to improve operations at this intersection as well as along Huntington Avenue. This improvement in traffic operations is expected to reduce vehicle idling time in the vicinity of the loading dock and therefore have positive effects on air quality.

# 5. Air Quality b- Exhaust stacks

Numerical dispersion modelling of exhausts on the Project showed that the exhausts from the building will generally meet suggested design criteria at the building's own air intakes, as well as at air intakes at the neighboring SPH Buildings # 1 and #2 and 180 Longwood Avenue. The exhaust of the Project will likely have no perceptible impact on the air quality for pedestrians on any side of the new building.

The favorable results for the proposed design are due to several design features which are summarized below:

- 1. vertical discharge at high velocity which gives the exhaust plume upward momentum, helping it to clear the lower level air intakes;
- 2. manifolding of the building's fume hood exhausts in the heat recovery unit and the bio-safety (3) level area exhausts which helps achieve high internal dilution of the fume hood exhaust;
- 3. exhaust stacks are located on the roof of the Project and the air intakes are located at grade, well away from the exhaust.

The Project will also improve the exhaust systems at SPH Building #2. Exhausts at the roof of SPH #2 will be combined into an exhaust plenum and routed up the west face of the Project. A portion of the mechanical penthouse of the Project will house new exhaust fans which will discharge the fumehood exhausts of SPH Building #2 at high velocity. As described above, combining the exhausts into a plenum will provide a more than sufficient dilution prior to discharge.

# 6. Water Quality

# Site Drainage

The Site is served by separate sanitary sewer and storm drainage systems. These systems, owned and operated by Boston Water and Sewer Commission (BWSC), convey sanitary sewage to the Deer Island Water Treatment Plant and storm drainage to the Muddy River and to the Charles River.

The Site is currently fully built up or paved with existing buildings or parking areas. Following construction of the Project, the quality of the runoff may improve by installing new collection roof drains. Much of the post-development Site runoff, will consist of roof runoff which is typically considered clean.

# **Laboratory Waste and Discharge**

For new construction projects requiring connection to the sewers, an application for a sewer connection permit will be completed in accordance with 314 CMR 7.00. The sewer connection application together with a water and sewer site plan will be submitted to the BWSC, which will approve and forward the application to DEP - Division of Water Pollution Control (DWPC).

These sewer connection permits will address discharge quality requirements and quantify the organic and inorganic chemical components of the waste streams. Any pretreatment measures to control hazardous substances will also be presented.

Waste to be discharged into the sanitary waste stream from the laboratory uses proposed will be further identified and analyzed in the Industrial User Sewer Discharge Permit to be filed by the School to the MWRA. The Harvard University Longwood Campus currently operates under an MWRA permit. Both the MWRA and the DWPC will review and approve the wastewater pretreatment system prior to commencement of operation of that system.

# 7. Solid and Hazardous Waste

The Project will generate four separate solid waste streams during operation. These include:

- 1. Non-contaminated trash
- 2. Bio-hazard waste
- Chemical waste
- Radioactive waste

The following is a discussion of activities around each waste stream and a rough estimate of the Project's generation of bio-hazardous, chemical and radioactive waste during full operation.

Non-contaminated Trash - Regular trash will be handled by a regular trash hauler under the direction of the Facilities Maintenance Department.

Bio-hazardous Waste - All Project bio-hazardous waste will be collected in the laboratories in cardboard burn boxes, sealed, and picked up by BFI, Inc. BFI, Inc. will incinerate the bio-hazardous waste in their state and federally approved incinerator. This program is managed by Paul Blanchette with technical guidance from the Longwood Campus Biosafety Officer. It is estimated 20-25 burn boxes per month during full operation.

Chemical Waste - All chemical waste will be collected by the Longwood Campus Environmental Health and Safety hazardous waste technician. The waste will be temporarily stored in a specially designed facility. The waste is disposed of by a licensed hazardous waste disposal vendor who meets all of the requirements of federal and state laws. The EG & S technician inspects each laboratory for compliance with all hazardous waste disposal requirements at each pickup. The entire program operates under the direction of the Longwood Campus Safety Engineering supervisor. It is estimated 460 gallons per year of hazardous waste from the Project during full operation.

Radioactive Waste - Radioactive waste will be picked up by a technician from the Harvard Radiation Protection office and temporarily stored in a specifically designed facility. This technician inspects each laboratory for radioactive waste disposal requirements at each pickup. All radioactive waste will be moved to Harvard's radioactive waste holding area in Southboro, Massachusetts by a Harvard Radiation Protection truck. At Southboro, the vast majority of radioactive waste will be decayed and disposed of as nonregulated trash. Longer-lived radionuclides will be shipped to a Department of Energy holding location in South Carolina. It is estimated that 760 cubic feet of radioactive waste will be generated yearly in the Project at full operation.

# 8. Noise

## **BUILDING MECHANICAL SYSTEMS**

Mechanical systems in the Project are designed to not exceed the noise standard set forth in the City noise regulations, Section 16-26, City of Boston Code, Volume I, Ordinances. The ordinance requires that the noise level at residential property lines be less than 60 dBA during day time hours and less than 50 dBA during night time hours. These requirements typically apply to continuously operating equipment. The noise requirements are typically relaxed for infrequently operating equipment such as emergency equipment.

Significant mechanical system outdoor noise sources for the Project are located in the basement and in the penthouse. In the penthouse there are two large exhaust heat recovery air handling units and an emergency generator. In the basement there are two large air handling units that draw in 100% outside air, a smaller air handling unit that draws in only a portion of its air flow quantity, and supply and exhaust air fans for the basement mechanical and electrical rooms.

The critical receptors for noise emissions from the Project are residential buildings across Huntington Avenue

The air handing units in the basement, exhaust units in the penthouse and the vent fans are all provided with high insertion loss silencers such that the predicted noise level at the closest residential property across Huntington Avenue, is below the nighttime noise standard. With the planned noise control features, the generator is expected to produce a noise level of about 60 dBA at the residential properties, but will only be operated for brief test periods during day time hours.

# 9. Geotechnical Impact

A geotechnical engineering investigation of the Project site was performed by Haley & Aldrich, Inc. Two test borings were drilled in 1989, in addition to six test borings performed adjacent to the site in 1960 for the existing SPH Building # 2. A groundwater observation well was installed in one of the boreholes completed in 1989. Subsurface soil conditions were observed in the test borings to generally consist of 3 to 9 feet of Fill overlying Marine Deposits, comprised of dense to very dense marine sand and stiff to hard marine clay. Glacial Till was encountered below the Marine Deposits, at depths of 63 and 68 ft in the two 1989 borings. The groundwater observation well indicated that the groundwater level was about El. 14 (Boston City Base) in September 1989, but was monitored at El. 10 in July 1993.

The Project will be founded on reinforced concrete footings, generally bearing at approximately El. 16, but with a few footings at the southern end of the site bearing at about El. 11. The basement floor slab is planned to be at about El. 20. An excavation of 25 feet to 35 feet in depth will therefore be necessary to construct the basement and foundations. The Manne Deposits present at those elevations are suitable for support of the Project, with a design allowable bearing pressure of 3 tons per square foot. A limited amount of underpinning of the existing SPH Building # 2 will be required to construct the new footings immediately adjacent to SPH Building # 2. The west and south sides of the excavation are planned to be supported by soldier piles with wood lagging, braced as necessary with corner or raker braces, or tieback anchors. The dense or stiff Marine Deposits present at the site will substantially reduce the potential for settlement of adjacent streets, utilities or buildings caused by the excavation. The excavation support system and underpinning specifications will include performance criteria to limit movements of adjacent buildings, utilities and streets to acceptable levels.

The volume of soil to be excavated is in the range of 13,000 cubic yards. Excavation is intended to be performed with conventional earthwork equipment (backhoes, bulldozers). As a result of the presence of pervious marine sands to depths of about 65 feet, it may be necessary to provide minor temporary dewatering, depending on the groundwater elevation at the time of construction. No adjacent buildings are supported by timber piles.

As the basement floor level is above the groundwater table, and existing pervious marine sands will remain below and surrounding the Project, existing groundwater flow patterns will not be significantly affected by the below-grade portions of the Project. Any limited areas of the basement which are below the design groundwater level of El. 19 will be designed to resist hydrostatic pressure. The Project will not include underdrains to permanently lower the groundwater table.

FRANCOIS-XAVIER BAGNOUD BUILDING

# 10. Construction Impacts

#### 10.1 Introduction

This section describes the proposed construction techniques, construction schedule and coordination, and probable construction impacts for the Project. Proposed measures to mitigate construction impacts are discussed in the conclusion of this section. Construction of the Project is scheduled to take approximately 24 months, with an anticipated start in September 1993, leading to completion in late Fall 1995.

It is still possible that the construction sequencing and schedule may change as a result of conditions encountered in the field. Similarly, projections provided concerning the number of employees on the job at any one time, or the average number of truck trips per month could change.

The various steps anticipated in the entire construction process are:

Enabling Work
Foundation
Superstructure & Fitout

These steps are described below.

# 10.2 Construction Sequencing and Techniques

# **Enabling Work**

Enabling Work will include the relocation of utility lines (storm and sanitary drains, electric line, communication lines, water supply line, and gas lines) running currently through the Project Site.

Commencing in Month 1 of construction (refer to Figure 1), the Enabling Work should be sufficiently advanced by the end of Month 5 so as to permit the beginning of foundation work on the Project Site in Month 6.

# **Project Foundation Work**

A number of foundation systems for the Project are currently under consideration. Conventional earth retention/foundation systems seem most likely and form the basis of the discussion of construction methodology and schedule presented herein.

The Project calls for a full basement level to house the Project air handling and electrical equipment. The depth of excavation is approximately 25 - 35 feet below existing street grade. An earth retention system on all sides of the Project Site, except along the existing foundation wall of SPH Building # 2, will be required. A soldier beam and lagging system is currently contemplated. Due to the depth of excavation, two tiers of tiebacks will be required. Ground water dewatering, however, will not be an issue, since the bottom of excavation is above the area water table.

Upon completion of excavation, poured in place concrete foundation walls and interior column spread footings will be installed. Structural steel, below-grade columns and the ground floor slab (concrete on metal deck) will then be erected. This work is expected to be complete in Month 13, whereupon erection of the superstructure

will begin.

# Superstructure and Fitout

The superstructure of the Project is designed as a structural steel frame with composite concrete/metal deck floor slabs.

The structural steel will be erected using a tower crane located within the footprint of the building. The tower crane will be founded on the ground floor slab. The structural steel will be delivered to the area of discontinued Worthington Street ("Staging Area"). The concrete deck placement will follow the steel erection as closely as possible.

Concrete will be placed over the metal decking by pumping from a diesel powered concrete pumping station, most likely located at the Staging Area side of the site. Structural steel erection will take approximately three months; floor slabs will be complete approximately one month after the steel is topped off.

The envelope of the Project is currently in design. The final design will most likely call for precast concrete and masonry skin and aluminum frame/thermal glass fenestration. Precast will be installed using the tower crane picking from Staging Area. Masonry infill will be installed from pipe staged scaffolding, erected from the ground surface. Masonry material will be delivered via the man/material hoist in the Staging Area.

The glazing systems are yet to be designed; however, it is anticipated that the design will permit installation from within the Project and, hence, will not require the use of a crane to put units in place. Glazing and roof installation should be complete in Month 19, marking achievement of a building envelope tight to weather.

Interior fitout will commence in Month 16, prior to the completion of building envelope.

Interior fitout and sitework are projected to be complete in Month 24, marking completion of the Project.

Transport of construction personnel and materials, during all but the last 3 months of construction when the permanent building elevators will be in service, will be accomplished using an exterior personnel/material hoist at the northeast corner of the Project. Materials will be delivered to the hoist staging dock via the Staging Area.

## Construction Staging and Logistics Sequence

# **Project (refer to Figure 3)**

Pedestrian and Perimeter Protection:

Existing buildings will be secured and temporary fencing installed to protect the site on three sides. Along the length of Huntington Avenue, a combined platform staging and walkway will be erected. At ground level, a covered pedestrian walkway will be located within the existing parking lane. Concrete traffic barriers will be installed on the street side, while a painted plywood construction fence will be located at the existing curb line.

The Staging Area will be fenced off along Huntington Avenue and Longwood Avenue. This area will accommodate site offices, storage and laydown areas.

Steel and precast erection will be performed with a Kodiac crane mounted within the footprint of the Project.

Material will be "picked" from the area at the end of the Staging Area adjacent to the Project Site.

A man/material hoist and temporary dock will be erected at the northeast corner of the Project.

#### Access and Vehicular Control:

The Staging Area will also provide the principal access to the site for construction trucking. It is not anticipated that it will be necessary to occupy Huntington Avenue for construction (except for the covered pedestrian walkway to be located in the current parking lane). Flagmen will be stationed at the site to control pedestrian and vehicular traffic as appropriate.

# **Probable Construction Impacts**

Construction is a relatively short-term, highly intensive activity. In this section, construction activities are evaluated for each impact category including: transportation, air quality, noise, geotechnical conditions, groundwater levels, infrastructure, and rodent control. The School of Public Health is committed to working with responsible agencies and institutions to mitigate any potential impacts.

# **Transportation**

The construction of the Project and related infrastructure is expected to cause only short-term impacts on transportation infrastructure. The School of Public Health will work closely with the Boston Transportation Department, Boston Police Department, and MASCO to minimize any potential impacts. The Construction Management Plan will contain the final details of the construction traffic planning and will be submitted to the BTD before construction commences.

# **Construction Worker Trip Generation and Parking**

Over the 24-month construction period, the average daily construction staffing on the Project will vary considerably. For the first eight months, the average daily work force is not anticipated to exceed 40 workers. Beginning in Month 9, the work force will increase to its peak of 70 to 80 workers in Months 10 through 20. Employment will then decrease to approximately 20 workers in Month 24, marking construction completion.

With the exception of a limited number of service vehicles that must be on the site, construction worker parking on or adjacent to the Project Site will not be permitted. It is hoped that a high percentage of workers will be Boston residents and will use public transit or carpool. Assuming that half of the construction workers will drive, carpool, or take public transportation, it is estimated that the number of daily work-related vehicle trips by construction workers will range from 10 to 80 vehicle trips per day, depending on the phase. Ten vehicle trips per day represents 5 vehicles carrying construction workers to the site in the morning, and 5 vehicles departing the site in the evening. A similar relationship is expected for the peak activity level period (months 10 through 20) when 40 entering trips would be expected in the morning and 40 exiting trips would occur in the evening. These vehicle trips are not expected to impact area peak hour traffic conditions significantly, since they will tend to occur primarily before or after the peak commuter hours.

#### **Truck Traffic**

Truck traffic will be generated by the need to remove excavated material and debris from the site and to deliver construction materials to the site. Specific truck routes will be established with the Boston Transportation Department through a Construction Management Agreement. No truck usage is expected or intended on any residential streets. At this time, regional trucks traveling to and from the site from north, northeast, and southeast are expected to exit I-93 at Massachusetts Avenue, arriving at the site via Ruggles Street to Huntington Avenue to Longwood Avenue and depart via the same route. Regionally generated trucks to and from the southwest, west and northwest are expected to exit I-93/128 at Route 9, arriving at the site via Huntington and Longwood Avenues and departing via the same route.

Truck activity will likely be distributed uniformly over the hours of the work day, from 7:00 AM to 3:30 PM. Of the specific construction activities which generate significant truck traffic, excavation removal generates the most traffic, followed by concreting operations. Excavation removal and concrete placement will generate an average of 15 round trips/day in Months 9 through 12 (Project subgrade construction).

Trucking volume will range from a low of 5 daily round trips in both the early and late months of construction to a mid-Project high of approximately 20 round trips. On days of high truck activity, marshaling of trucks offsite will be coordinated by radio. This will involve establishing an off-site truck waiting and queuing area.

# **Air Quality**

During the construction of the Project, short-term air quality effects could result from fugitive dust emission, which may cause increased local concentrations of particulate matter. The major source of particulate matter will be from excavation of the site. The dust emissions will depend on several factors, including soil silt content, moisture content, exposed surface area, construction practices, and local meteorology.

The uncontrolled emissions of fugitive dust from the first twelve months of construction are estimated to be 12 pounds per day. As required by the Massachusetts DEP, Air Pollution Control Regulation 7.09, dust will be controlled during construction as needed by water spray. Water will provide an approximate reduction of 50 percent in dust emissions during construction and will be used in conjunction with all activities that disturb the soil above the groundwater level, and on days when the surface is dry. The spread of fugitive dust off-site will also be reduced by fencing used around the perimeter to shield sidewalks and public areas from construction activities. Notification will be given to the DEP 10 business days prior to the start of construction as required by Massachusetts regulations. Following construction, permanent landscaping, buildings, and pavement will cover all exposed soil.

Additional temporary air quality effects will occur from the exhaust of construction vehicles operating on-site and trucks traveling to the site. These vehicles are diesel-powered and their emissions include nitrogen oxides, particulate matter, carbon monoxide, and volatile organic compounds. Due to the small number of vehicles scheduled to be on the site at any one time, emissions and air quality impacts will be minimal. Federal regulations control the emissions of air pollutants from individual diesel-powered vehicles.

# **Noise**

Construction-related noise impacts are, by nature, nearly unavoidable short-term events which primarily affect the area directly adjacent to the construction site. The principal noise-generating activities for construction of the Project include: Preliminary excavation activities; steel structure erection and building cladding; and construction vehicles and equipment operating on the site.

No pile driving will be done on the site; soldier beams will be installed by auguring and not by impact or vibratory methods. Traffic generated by construction activities is not expected to be a significant contributor of noise in the vicinity. Short-term noise impacts associated with the construction will be quite variable, and will depend on such factors as what phase of construction is taking place, and the type, quantity, and location of the equipment employed during that phase. Construction activity for the most part will be limited to hours ranging from 7:00 AM to 3:30 PM; however, some activities may require work to continue until 5:00 PM. Construction activities will fully comply with DEP Regulation 7.10 and City of Boston Noise Regulations. Off-site noise effects will be mitigated to the extent feasible by truck routes which avoid residential streets and by coordinating

construction activities with the City of Boston and area neighbors. The Boston Transportation Department has requested preparation and implementation of a Construction Management Plan and the School of Public Health intends to do so. Additionally, MASCO has a Construction Coordination Subcommittee which reviews construction activities in the Longwood Medical Area. The Project proponent itself is a sensitive receptor adjoining the site; this should ensure minimal disruption due to construction noise emissions. Other mitigation measures include: no pile-driving on the site; exclusion of blasting from the construction process; ensuring that all mufflers and other noise control devices are maintained in working order; and using physical enclosure where possible to shield the community from noise impacts.

#### **Geotechnical Conditions**

Based on a recent field exploration program consisting of two test borings, the data from these explorations indicate that the subsurface conditions at the site consist of the following generalized strata, listed in sequence from ground surface downward:

Miscellaneous Fill. An approximately 3 to 9 foot thick stratum of loose to dense sand with varying amounts of silt, clay, ash, brick, cinders, and concrete. This type of fill is typical of previously developed urban areas.

Marine Deposits. The marine soils which underlie the miscellaneous fill typically consist of a marine sand in the upper portion of the deposit grading to a marine clay with depth. The sand varies from to 37 feet in thickness with the clay varying from 26 to 64 feet in thickness.

Glacial Till. The glacial till generally consists of a very dense mixture of silt, clay, and gravel. Glacial till was encountered in borings at depths varying from 63 to 68 feet and in thickness' ranging from 18.0 to 64.8 feet.

Bedrock. Bedrock was encountered at depths ranging from 98.0 to 123.0 feet.

The excavation may result in very small horizontal and vertical ground movements adjacent to the perimeter wall system. The wall system, and the method of excavation and bracing will be specifically chosen to reduce and control the magnitude of these movements. SPH Buildings #1, 2, & 3, and the building at 180 Longwood Avenue may be impacted by ground movement settlement, however, these settlements are expected to be minimal. Numerous utilities exist beneath the sidewalk and roadways adjacent to the site. The excavation may result in small movements of these structures, but their functions are not anticipated to be impacted.

Measures to minimize potential impacts of below-grade construction on adjacent structures, utility lines, and area groundwater levels are planned for each aspect of construction. Specified construction performance criteria will be developed by the design team and careful monitoring of construction performance will be employed to prevent adverse impacts on adjacent buildings and utilities.

A construction monitoring program using geotechnical instrumentation and optical survey could be used to reduce potential negative impacts to adjacent structures by providing a basis for determining the need for additional mitigation measures. There are numerous instruments and techniques available to monitor construction. A program will be selected based on site geology and construction methods and sequencing. Instruments will be selected to monitor general performance of the earth support system, ground movements, horizontal and vertical building movement, vibrations, water levels, and pore pressures. Such instruments could include observation wells, piezometers, surface reference points, building reference points, vibration monitors, and inclinometers. The wells and piezometers will be installed outside the excavation area to monitor

groundwater levels adjacent to the excavation as well as at adjacent structures. Inclinometers would be installed adjacent to the earth support system to monitor for lateral soil and wall movement. The instruments would be installed prior to excavation to establish baseline data and then read periodically throughout construction to monitor geotechnical conditions during construction. A program of rapid response measures will be developed to be used if necessary. The proponent will coordinate with the adjacent landowners and officials of the City of Boston in the implementation of the geotechnical monitoring program.

Project specifications will include provisions for preplanned remedial measures so that the contractor will promptly remedy ground movements if indicated by the construction monitoring program. Threshold movement criteria will be established prior to construction. Contractors will be required to take all steps necessary during the work to protect nearby structures and, if necessary, modify their methods to ensure compliance with the performance standards.

# Construction Debris and Excavation Spoil Disposal

Demolition will be limited to "cut-ins" to existing buildings. Some of the materials to be removed are masonry, drywall, concrete, metals, and glass. These materials will go either into a 20 cubic yard dumpster to be emptied by a contracted service, or be separated into recyclable bins and be removed from the site.

Excavation spoil will consist of miscellaneous fill placed on the site and natural marine deposits. This spoil will be disposed of in full compliance with all federal, state, and local laws and regulations. Asphalt from existing parking lot and roadway areas will be recycled.

#### Groundwater

Construction of the Project is not expected to adversely affect groundwater levels in the area. Measurements taken in observation wells during and following the period of the test boring program indicate that groundwater levels are below the anticipated depth of excavation. Periodic measurement of observation wells and piezometers will be continued throughout the construction period in order to monitor groundwater levels in the Project vicinity.

During excavation, temporary construction dewatering to remove perched water or rain water will be required to allow construction to be undertaken in-the-dry. The construction dewatering will be conducted from localized sumps or open trenches, and discharged to the local city storm drain following removal of silt and other suspended solids. Sewer discharge permits, as necessary, will be obtained from Boston Water and Sewer, EPA and/or MWRA.

Permanent under drains or foundation drains will not be needed or used. No post construction dewatering will be required.

#### Infrastructure

## **Utility Connections**

It will be nescessary to connect the new building to sewer, strom drain, domestic water, gas, electric, and telecommunication lines. The installation of each individual service connection is anticipated to be completed in a matter of days. Appropriate measures will be taken to avoid any disruption of utility service to minimize the impact on pedestrian and vehicular traffic.

#### Rodent Control

The City of Boston has declared that the infestation of rodents in the city is a serious problem. To control this infestation, the City has established requirements under the Massachusetts State Sanitary Code, Section 108.6. Policy Number 87-4 established that extermination of rodents shall be required for issuance of permits for demolition, excavation, foundation, and basement rehabilitation.

With the assistance of a licensed exterminator prior to beginning any work on the Project, a rodent control program will be developed and implemented to prevent impacts from construction. A rodent extermination certificate will be filed with the building permit application to the city. Rodent control inspection monitoring, and treatment will be carried out before, during, and at the completion of all foundation work for the Project, in compliance with the city's requirements. Rodent extermination prior to work start-up will consist of treatment of areas throughout the Project area, including alleyways, surrounding building exteriors, and building interiors. During the construction process, regular service visits will be made in order to maintain effective rodent control levels.

# Mitigation Measures

Construction period mitigation measures will be the subject of continued consultation with the City of Boston through a Construction Management Plan, which must be prepared before construction can commence. The School of Public Health will continue to work with MASCO and to participate in the MASCO Construction Coordination group to limit disruption to the adjacent community. The construction contractor will also play an active role in monitoring and carrying out activities according to plan. Currently identified construction period mitigation measures are described below.

#### **Traffic**

Designated truck routes will be established in consultation with the Boston Transportation Department. These routes will be enforced through contractual clauses in each contractor/subcontractor agreement.

Adequate staging areas will be provided within the site enclosure to eliminate the need for the construction equipment and materials to be located on streets and sidewalks.

Secure site fencing and pedestrian protection will be provided to maintain continuous pedestrian traffic along the Huntington Avenue sidewalks.

Vehicular access gates to the site will be located in consultation with the Boston Transportation Department. Police detail officers will be assigned, as required, to maintain a safe and orderly flow of vehicles and pedestrians.

Construction workers will be encouraged to use public transportation. With the exception of a limited number of service vehicles, construction worker parking will be prohibited on-site. No on-site parking for construction workers is proposed, rather, those workers who choose to drive will be required to park in area garages and pay full market rates. It is expected that this will encourage carpooling and public transportation usage.





# D. Infrastructure Systems Component

# 1. Water and Sewer Systems

# **Infrastructure Systems Components**

Sanitary Sewer and Stormwater System

# Description

The Project area is currently served by separate storm and sanitary sewers owned and operated by the Boston Water and Sewer Commission (BWSC).

# **Capacity of Existing Facilities**

The results of an evaluation of the capacity of the existing sewer routing are shown in the enclosed Table #I. The capacity of each sewer segment has been calculated based on the Manning Equation and sewer sizes, manhole invert elevations, and segment length data taken from BWSC's Wastewater System Maps. See Map #I.

A sanitary sewer connection will be made to an existing sewer line that runs under discontinued Worthington Street and Longwood Avenue. The connection will be made to a 12-inch diameter section under discontinued Worthington Street. This BWSC sewer connects to the MWRA owned and operated South Charles Relief Sewer at Huntington Avenue.

The South Charles Relief Sewer discharges to the Ward Street Headworks which pumps wastewater through the Boston Main Drainage tunnel (capacity 438 mgd) to the main pumping station at Deer Island.

TABLE I

SEGME MH - MH		STREET NAME	SEGMENT SIZE	SEGMENT LENGHT(FT)	SLOPE (FT/FT)	CAPACITY MGD
89 - 87 (Drop M	Н)	Discontinued Worthington/ Longwood	12"	200	0.11	7.72
87 - 86		Longwood	12"	190	0.004	1.44
86 - 92 (Drop M	H)	Huntington	24" x 36"	60	0.12	49.68
92 - 283		Huntington	28" x 42"	280	0.006	14.84

# **Project Wastewater Generation**

The majority of wastewater generated by the Project will be domestic sewage from the new student classroom population in the Project and laboratory discharge. The sewage generation rates have been estimated by use category based on Title V guidelines (314 CMR 7.15 and 310 CMR 15) and by estimates generated from actual water use and discharge at a similar medical research laboratory. The average daily project domestic sewage discharge is projected to be 5,625 (gpd). A breakdown of sewage generation estimates is presented in Table II.

#### TABLE II

OCCUPANCY	POPULATION	SEWAGE RATE	FLOW ESTIMATE
School	375	10 GPD per person	3750 GPD
Laboratory	375	5 GPD per person	1875 GPD

Total 5625 GPD

## **System Connections**

Sanitary sewage service connections will be made during the construction of the Project to the existing 12-inch sewer under discontinued Worthington Street. The construction of all connections will be incorporated into the general construction phasing in order to minimize effects on adjacent streets, and to ensure that adequate facilities are available to service the Site and surroundings during construction.

# **Permitting Requirements/Mitigation**

To mitigate the effects of the new sewage generation, the School will meet all applicable code requirements for the installation of low flow fixtures. These savings are not reflected in discharge estimates calculated according to rates set by 314 CMR 7.15. The use of low flow fixtures such as 0.5 gpm faucet aerators and low volume toilets can reduce the projected water consumption and sewage generation rates estimated by up to 20 percent. In this case, use of low flow fixtures could result in a reduction of approximately 1,125 gallons per day. However, because water use estimates for laboratory use were generated using actual data from a modem facility that makes use of low flow fixtures and other water saving measures, water use and waste water generation estimates should be representative of actual final design project use.

All proposed service connections and system modifications will be performed to the standards of the BWSC and will be subject to their review and approval. Existing sewer connections and service to the area will be maintained during construction of the Project. If interruptions are necessary due to construction activities, they will be coordinated with the BWSC so as to minimize effects in the service area.

## **Project Storm Drainage**

The Site is currently fully built up or paved with existing buildings or parking areas. Following construction of the Project, peak runoff from the Site will be somewhat reduced. Quality of the runoff will be improved by new collection roof drains. Runoff will be routed directly to the stormdrain system without traveling over land. Thus, the Project will result in an improvement in the quality of stormwater runoff. Based on discussions with the BWSC, there are no known stormwater problems within the Project area. The proposed routing will be through the existing discontinued Worthington Street drainage system which discharges through outfall DO047 to the Muddy River or through the existing Fenway System. The Fenway System discharges to the Muddy River via outfall DO045 or via overflow to the Muddy River Conduit.

## **Water Distribution System**

The following section presents an analysis of the Project's anticipated effects on existing water supply facilities. The analysis includes a description of existing facilities, an estimate of the Project water consumption, and an evaluation of the facilities' adequacy to handle the increased demand. A number of mitigation measures, such as the use of water conserving plumbing fixtures are proposed to reduce the Project effect.

# **Description of Existing Facilities**

Existing water service for both domestic use and fire protection to the Site is supplied from water systems owned and operated by the BWSC. These systems are designated as the Southern Low Service (SLS) System, and Southern High Service (SHS) System. The SLS is generally used to meet domestic water needs and some street hydrant demand and the SHS is used to meet fire flow.

This water supply system is integrally connected to form loops which allow major water demands to be fed from more than one direction. This looping allows each system to function at optimum efficiency, and to provide a measure of safety and redundancy in the event of a water main break. See Map II.

# **Capacity of Existing Facilities**

The existing SLS system in the site vicinity was tested on November 1, 1990, for capacity via hydrant flow tests with results as follows:

Static Pressure - 76 PSI
Residual Pressure - 73 PSI
Flow Rate - 2084 GPM

Flow and pressure in the tested hydrants appear to be adequate to serve the development's water use needs and firefighting requirements. Representatives of the BWSC indicated that the existing capacity is sufficient to satisfy the water needs of the Project.

# **Project Water Use**

For the Project, the primary consumption water uses will be for domestic sanitary water supply and laboratory water supply. Average daily water consumption was estimated using the Title V (314 CMR 7.15 and 310 CMR 15 guidelines). Peak use values have been derived by estimating project population and fixture counts. The

estimated water demand for the Project is as follows:

Average Daily Consumption - 6,150 gallons Peak Flow Rate - 40.5 gallons per minute

## System Impacts

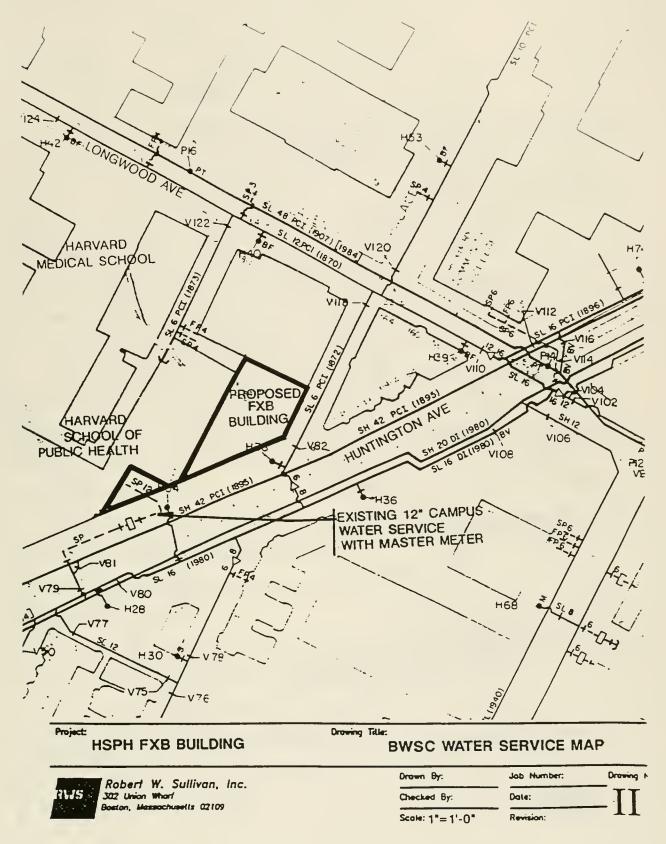
Based on recent hydrant flow test data (November 1, 1990), the existing SLS water system serving the Site has a capacity of approximately 2,084 gallons per minute (gpm) at 73 pounds per square inch (psi), which is more than adequate to supply the 40.5 gpm peak demand of the University's Project. The Project also requires a fire flow of approximately 1,000 gpm. The existing SHS water system is capable of supplying greater than 10,000 gpm at 20 psi which is more than adequate to meet the firefighting requirements of the Project.

## **System Connections**

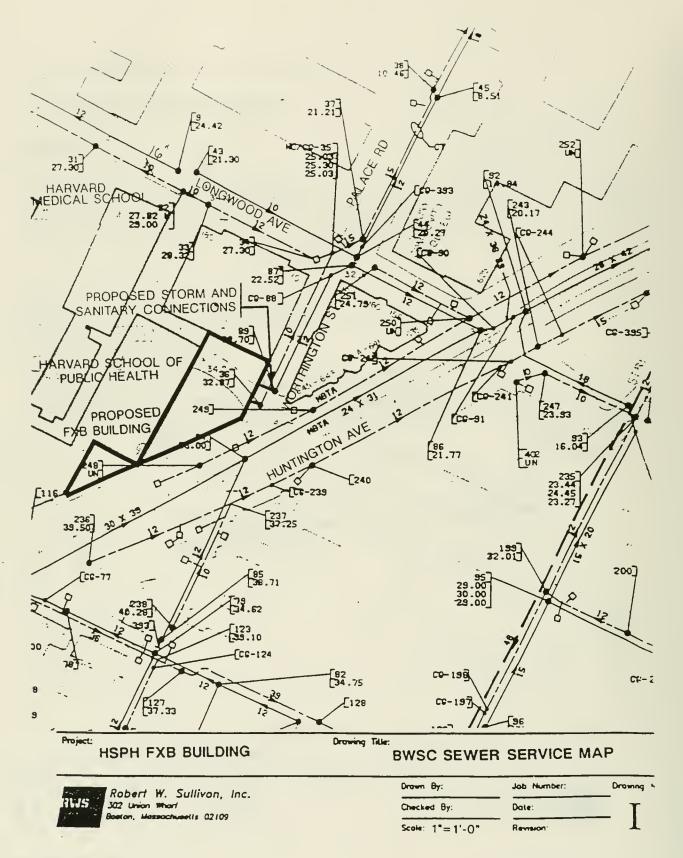
Domestic water and Fire Protection Service will be supplied from the existing 12 inch main supplying the campus. The service is equipped with a BWSC approved master water meter.

# Water System/Mitigation Measures

To minimize water use, the School will meet all applicable code requirements for the installation of low flow fixtures, such as 0.5 gpm faucet aerators and low flow toilets. In addition, the School plans to use the water resources as effectively as possible and is evaluating various operational approaches to achieve this goal.



**BWSC Water Service Map** 



**BWSC Sewer Service Map** 

# 2. Energy

### **Energy Required for the Project**

BR+A has modeled the mechanical and electrical systems for this project utilizing the Trane "Trace" energy estimating program. The building will be provided with electricity, steam and chilled water from the MATEP energy distribution system. The annual energy consumption is estimated as follows:

Electricity:

4.556.070 KWH/Year

Steam:

152 Million BTUs/Year

Chilled Water:

122 Million BTUs/Year

### **Energy Conservation Measures**

The following energy conservation measures have been incorporated into the project:

- -Heat recovery of energy in the exhaust air to preheat make-up air.
- -Variable air volume air handling units.
- -Reduced airflow in unused and unoccupied laboratories.
- -Premium grade high efficiency motors.
- -High efficiency lighting systems which meet or exceed Mass State Energy Code requirements.
- -High Efficiency Low -E glazing systems.

Skylights have been incorporated into the Lobby and other areas of the Project to take advantage of daylighting." The use of solar energy for water heating and other uses was not incorporated into the Project because they were not deemed economically feasible for this Project.

### **Energy Source of Interior Space, Reuse of Cooling Condensate**

The heating and cooling sources for the Project are hot water generated by steam, and chilled water to the air handling units. Both sources are provided via the MATEP district energy distribution system. There are no boilers, chillers or cooling towers provided under this Project.

The reuse of cooling condensate is not feasible for the Project.

### **Emergency Power Capacity**

There is a new 750 kW diesel powered emergency generator provided in the penthouse. It is a standby emergency generator only and is not intended to operate as a primary power source. The capacity of the generator is designed to serve life safety and research systems.

#### **Location of Transformer and Other Vaults**

The transformers are located inside the Project's main electrical room at the basement floor. There are no outside vaults.

# 3. Other Systems

#### Gas

Natural gas for the laboratory "point of use" outlets is to be provided by Boston Gas via existing gas lines serving the campus. Boston Gas has indicated that sufficient capacity is available in the Project area to meet the Project's needs.

### Steam

Steam is provided from the MATEP steam distribution to the building. There are not expected to be any significant discharges of steam from the building. As a safety measure, there will be safety relief vents that release steam into the atmosphere at the roof only in the event of a system malfunction .





# 2. Transportation Evaluation

HARVARD SCHOOL OF PUBLIC HEALTH: THE PROJECT TRANSPORTATION EVALUATION EXECUTIVE SUMMARY

#### **TRANSPORTATION**

The School of Public Health commissioned Vanasse Hangen Brustlin, Inc. (VHB) to conduct a transportation assessment in connection with the Project to be located at the intersection of Huntington Avenue and discontinued Worthington Street in the Longwood Medical and Academic Area (LMA). The Project contains 80,527 gross square feet as calculated under the Boston Zoning Code(GFA) of medical research oriented space and accessory uses. This transportation assessment has been prepared to address transportation issues that may be of interest to the Boston Redevelopment Authority (BRA) and the members of the community.

The information presented below has been gathered from several sources, including the Project Notification Form submitted to the BRA on April 15, 1993, recent analyses and information provided by the School and the Project architects, and information presented in other transportation studies conducted for recent projects in the area. This assessment addresses the following topics:

- Traffic
- Public transit
- Trip generation
- · Parking demand/supply
- · Pedestrian and bicycle circulation
- Service vehicles

A brief discussion of the area's transportation issues precedes the analyses and conclusions of the transportation evaluation.

### **Transportation Context**

The use of the transportation system that serves the LMA has been studied extensively over the years. Harvard, through its support of MASCO, has contributed to the preparation of several comprehensive transportation, parking and transit studies. The most significant projects include the 1987-88 Comprehensive Transportation Study of the LMA conducted by VHB for MASCO and the Transportation Study Update of the 1987-88 report which was completed by VHB in 1992.

Each of these studies contained extensive information about existing transportation systems and traffic conditions in the area and evaluated the operations of those systems. Growth forecasts were developed to help in understanding the dynamic nature of the area and to estimate how conditions may change in the future as growth and development occurs in the LMA. Finally, both studies evaluated an extensive set of transportation mitigation measures which were aimed at either reducing the total amount of automobile travel or reducing the impacts of automobile traffic on the street network.

MASCO and the LMA institutions have implemented many of the recommended transportation improvement actions outlined in those two studies. The most significant recent project included the removal of parking meters on Longwood Avenue between Huntington Avenue and The Riverway and a portion of Brookline Avenue near the Longwood Avenue intersection. These changes allowed the creation of a fifth lane on

Brookline Avenue to accommodate left-turning vehicles and a third travel lane on Longwood Avenue. In addition, MASCO and the City of Boston are currently implementing signalization improvements at two locations:

- Longwood Avenue and Chapel Street (in nearby Brookline)
- Longwood Avenue and The Riverway

These improvements have been successful in reducing congestion, improving traffic flow, and increasing mobility in the LMA.

MASCO has played a lead role in creating the CommuteWorks Transportation Management Organization (TMO) within the LMA, which is responsible for promoting alternative means of transportation (public transit, ridesharing, carpooling, vanpooling, and walking to work). The TMO began with a grant from the Massachusetts Bay Transportation Authority (MBTA) and has since been funded annually by MASCO member institutions. Full-time staff is assigned to these responsibilities and an extensive outreach program to each institution is also underway and continuing.

Harvard has played a key role in these mitigation actions and will continue to do so as one of the five major proposed institutions in the LMA. Mitigation measures being implemented by Harvard for this project build on significant mitigation commitments of the past. Those which are expected to affect the trip generation characteristics of the proposed project include:

- Providing schedules and promotional materials for area transit services, both public and private, to everyone working at the site.
  - Providing for sales of MBTA transit service passes and MASCO bus tickets within the LMA, at the Longwood Galleria.
- Subsidizing the cost of MBTA passes for all School of Public Health employees working at the Project.
- Continuing to subsidize the shuttle bus service between the LMA and the Cambridge campus of Harvard University.
- Encouraging employees to participate in MASCO-sponsored ridesharing matching programs as part of the CommuteWorks TMO.
- Promoting carpools and vanpools by providing promotional materials on their advantages to employees.
- Providing a bulletin board reserved for notices related to carpool and vanpool matching.
- Participating in the State sponsored CARAVAN program, through MASCO.
- Reserving a sufficient number of conveniently located parking spaces for carpools and vanpools at the existing Quadrangle garage.
- Promoting flexible work schedules, to the extent possible, to School of Public Health employees at the Project.
- As an incentive to encourage bicycle use, making safe, secure and convenient bicycle parking facilities available for employees at the site. Showers will also be available for cyclists.

It is in the context of these many mitigating actions and improvements that the transportation impacts of the Project has been evaluated.

### **Project Description**

As described in the Project Notification Form, the Project includes the following transportation-related elements:

- Construction of a eight-story (above grade) Project encompassing 80,527 square feet of gross floor area for laboratories, offices, classrooms, and common areas;
- Construction of 25,230 square feet of mechanical area;
- Restoration of the sidewalk and landscaping parallel to Huntington Avenue and discontinued Worthington Street;
- Elimination of one existing loading dock accessed from Huntington Avenue. Activity at this dock will be combined with that of the Harvard Medical School loading dock which is accessed from Longwood Avenue.
- Elimination of 25 surface parking spaces on the Project site. Parkers utilizing these spaces will be transferred to the existing below-grade garage under the Quadrangle which was built prior to this Project. Additional parking needs from new projects at the Longwood Campus such as this one were considered when that project was planned. No new parking is planned as part of the Project.

### **Existing and Projected Condition**

#### Traffic

Based on traffic counts conducted over the last few years, Huntington Avenue carries 29,611 vehicles per day (vpd), and Longwood Avenue, which will serve as access to the consolidated loading docks and relocated parking spaces, currently carries 13,484 vehicles per day. Worthington Street has been discontinued as a public way and will be used as a staging area for the Project. As is evident from the existing traffic volumes, Huntington and Longwood Avenues represent the major corridors for local both traffic and regional traffic in the LMA. The Huntington Avenue/Longwood Avenue intersection, and the Huntington Avenue/ intersection with Tremont, Francis and Calumet Street's (Brighton Circle) are the closest major intersections to the Project site.

### **Trip Generation Forecasts for the Project**

A trip generation forecast was undertaken to estimate the number of new trips expected as a result of this development. The trip generation estimates for the Project are based on the number of additional people expected to utilize the Project and are not entirely dependent on size of the building or parking supply. For the Project, trip generation was estimated based on a set of assumptions beginning with usable area of the Project. Next, the number of people that will be relocated to the Project from other areas in the LMA were subtracted from the total expected population of the Project to determine the number of additional people that would travel to the LMA as a result of the Project. Modal split and vehicle occupancy rate estimates were then applied to determine the expected number of additional vehicle trips that would likely be generated by the Project on a typical weekday. The percent of arrivals and departures that occur during the morning and evening peak hours were used to calculate the peak hour vehicle-trip estimates and corresponding impact to adjacent intersections.

Since the Project is a replacement facility for many of the expected occupants, the additional trips generated by the Project will be significantly lower than for a new facility. The planners for the School of Public Health estimate that a total of 300 people will occupy the Project upon completion. Of these, approximately one half (150) will be relocated from the existing School of Public Health buildings in the LMA. The 150 new, additional occupants will consist of faculty, post-doctoral and graduate students, technical staff, and office/building operations staff. The expected composition of the additional staff is shown in Table 1.

Table 1 Expected Additional Users by Category for the Project

User Category	Percent of Total *	Estimated Number of New People
Faculty	13	20
Post-Doctorals	10	15
Graduate Students	33	50
Technical Staff	30	45
Office/Building Operations Staff	13	20
Total	100	150

Source: Harvard School of Public Health

The following two sources of travel characteristic data were researched in order to estimate the model split and vehicle occupancy rates likely for employees of the Project.

- MASCO Commuter Mobility Work Plan survey conducted at the School of Public Health in April, 1991.
- \_ Harvard Genetics Lab transportation survey conducted by VHB in 1989. The travel characteristics at the Genetics Lab are likely to be similar to those for employees in the Laboratory space planned in the Project, where the majority of new employees will work.

These two surveys indicated very similar travel patterns for employees. The surveys revealed an automobile usage percent ranging from 32 to 39 percent of all arrivals and a vehicle occupancy rate of 1.08 to 1.17 people per vehicle. Using these travel patterns, the 150 new employees expected to work at the Project can be expected to generate a maximum of 50 new daily round-trips or 100 new daily one-way automobile trips. This number of trips, 50 daily round trips or 100 one-way trips, represents a very small expected increase in comparison to existing traffic conditions in the area. Furthermore, the trips will be spread out over the day, since many researchers travel to and from work at times other than the morning and afternoon peak travel times.

Based on the MASCO Commuter Mobility Plan, it is estimated that 43 percent of all inbound trips will occur during the morning peak hour and 37 percent of all departures will occur during the evening peak hour. Application of these peak hour percentages result in approximately 22 moming peak hour inbound vehicle trips and 19 outbound evening peak hour vehicle trips. These estimates are probably high since the employee mix of the Project will include a higher number of researchers, many of whom travel at hours other than peak travel times.

<sup>\*</sup> Individual categories do not add to 100 % due to rounding.

### Peak Hour Vehicle-Trip Impacts on Adjacent Intersections

As determined previously, the Project is expected to generate (worst case) 50 round trips via automobile or 100 total daily one-way vehicle trips with an estimated 22 inbound trips during the morning peak hour and 19 outbound vehicle trips during the evening peak hour. The impact of these peak hour vehicle trips on the intersections in the LMA and adjacent to the Project Site is expected to be negligible. To illustrate this, Table 2 presents the Project-generated traffic volumes at the two major intersections adjacent to the site. These include:

\_\_ Huntington Avenue/Longwood Avenue/St. Alphonsus Street/McGreevey Street

## Brigham Circle

In addition, Table 2 illustrates the relationship between Project-related traffic and the projected Build Condition traffic volumes at these two intersections. The "Build Condition" traffic volumes shown in the table consist of existing traffic volumes, traffic impacts from other known area developments and the Project. Traffic generated by the Project was routed to the site using employee distribution data from the LMA area wide transportation study conducted by MASCO in March, 1992. As shown, the Project is expected to account for a maximum of 12 vehicles per hour or at most one-half of one percent of the total traffic at the intersections during the peak commuting hours. This level of traffic increase in negligible and does not warrant an in-depth intersection analysis to determine its impacts on the peak-hour operations of the intersections.

Table 2 Project Effect of the Project on Study Area Intersections

	Existing Volume Entering		Build** volume Entering ***		Project-f Traffic	Project-Related Traffic		Percent Increase Over No-Build	
Intersection	AM	PM	AM	PM	AM	PM	A	M	PM
Huntington/ Longwood/ St. Alphonsus/ McGreevey	2,949	3.174	3.051	3.290	12	10	C	).4	0.3
McGreevey		3,174	3,031	3,230	12	10		·	0.0
Brigham Circle	2,198	2,869	3,386	2,957	11	9	C	.5	0.3

<sup>\*</sup> Existing traffic volumes from turning movement counts conducted in September, 1990 and March, 1991 by VHB.

### Parking

There are currently a total of 25 parking spaces on the Project site which are controlled by the School of Public Health. When it was proposed, the School of Public Health reserved a total of 70 parking spaces in the underground parking garage built by Harvard under the Quadrangle. These 70 spaces were earmarked for future growth by the School of Public Health by the Transportation Access Plan Agreement between Harvard and the City, dated October 15, 1990. Currently, 38 of these spaces are assigned to the School of Public Health employees. The remaining 32 spaces will be used to serve the new and relocated parking demand from the Project. No new parking is proposed as part of the Project.

The additional peak demand for parking spaces created by the Project would be one space for every additional round trip vehicle trip generated by the Project. As was determined in the trip generation portion of this evaluation, 50 additional round trips are expected to be generated on a daily basis. Thus, the additional demand for parking would equal a maximum of 50 spaces at peak.

<sup>\*\*</sup> The Project

<sup>\*\*\*</sup>Includes traffic impacts from other planned LMA projects and the FXB Project.

Table 3 presents the existing and future projected parking supply/demand relationship for the School of Public Health. The table shows that the existing parking supply of 155 spaces serves current parking demand of 123 spaces resulting in a parking space surplus of 32 spaces. The second column in the table shows that 25 spaces will be lost due to construction of the Project and that the peak impact of the Project on parking results in an additional 50-space demand. The third column shows a 43-space parking deficit resulting from a future parking supply of 130 spaces with an estimated demand of 173 spaces. The small projected shortfall is consistent with current BTD policy which is designed to reduce parking demand and traffic.

Table 3 Existing and Future Projected Parking Supply/Demand Relationships

	Existing	Project Impact	Projected Future
Parking Supply	155*	- 25	130
Parking Demand	123	+ 50**	173
Supply/Demand Relationship	+32	- 75	- 43

<sup>\*</sup> Includes spaces on site, in Longwood Facility and in the Quadrangle Garage.

### **Public Transit**

Huntington Avenue provides a center right-of-way reserved for the Massachusetts Bay Transportation authority (MBTA) Arborway (E) Green Line. The right-of-way for the Arborway Line is physically separated from the Huntington Avenue roadway in the Project area via protective barriers and fences. The Arborway Line runs along the eastern border of the LMA, then south through Mission Hill and Jamaica Plain to Forest Hills Station, where passengers may transfer to buses serving Dedham, West Roxbury, Hyde Park and Roslindale. Service is provided seven days a week, from 5:30 AM until after midnight. Headways are scheduled at least every ten minutes during most of the service hours. The Brigham Circle stop of the Arborway Line is located near and in direct view of the main entrance to the Project. The LMA is also served by the Green Line Riverside (D) Line with the Longwood stop located farther to the west adjacent the Riverway.

The site is also served by several bus routes including MBTA route numbers 39 (Copley Square-Forest Hills) and 66 (Allston-Dudley Square), each with stops within two blocks of the Project. Other bus routes with stops near the LMA include Route 47 (Central Square-Andrew Square), Route 47A (Kenmore Square-Boston City Hospital), Route 60 (Kenmore Square-Chestnut Hill), Route 65 (Kenmore Square-Brighton Center), and MASCO Route M2 (the Cambridge-LMA shuttle).

#### **Pedestrians**

Pedestrian circulation to, from, and around the Project site will be significantly enhanced as a result of the Project. The entrance tod easily identifiable from the MBTA stop in the Huntington Avenue center right-of-way. The sidewalks adjacent to the Project on both Huntington Avenue and discontinued Worthington Street will be reconstructed and widened from eight to eleven feet and will include construction of planters which will support sidewalk trees. As a result of this Project two existing curb cuts on Huntington Avenue will be eliminated, thereby improving pedestrian safety conditions and reducing the number of potential pedestrian-vehicle conflicts. One of these driveways currently serves the existing loading dock, and the other serves as a secondary access to the loading dock for SPH Building # 3.

<sup>\*\* 50-</sup>space parking demand represents the maximum parking demand that can be expected as a result of the Project.

### **Service Vehicles**

Service vehicle circulation patterns will change as a result of the construction of the Project. The existing loading dock at the SPH Building #2 which currently has access onto Huntington Avenue will be eliminated. Vehicles utilizing this loading dock will be rerouted to the existing loading dock which is accessed from Longwood Avenue. Elimination of this loading dock and consolidation of loading activities will both decrease the number of curb cuts and significantly improve the pedestrian environment along Huntington Avenue without significantly affecting Longwood Avenue.

### **Travel Demand Management Strategies**

The vehicle-trip generation discussion demonstrated that the traffic impacts expected to result from development of the Project will be quite small. Nonetheless, the School of Public Health clearly recognizes the need to manage the demand for transportation services to minimize the impact of LMA growth on the local and regional transportation systems. The School of Public Health has been an active participant in the on-going efforts to improve transportation conditions in the LMA for many years and is an active member of Commute Works, which is MASCO's Transportation Management Organization. As detailed earlier in this Transportation Evaluation, a large variety of transportation demand strategies are currently employed by the School of Public Health. These strategies outlined previously will be extended to the people who work in the Project in an attempt to further reduce vehicle-trip generation and minimize parking demand.

### **Conclusions**

The Project is expected to have a minimal impact on transportation conditions in the LMA. Reasons for this conclusion include:

- The relatively small increase in number of additional vehicle trips (50 round-trips or 100 one-way trips per day) generated by the Project.
- A significant portion of the Project includes research space which is one of the least parking intensive uses in the LMA. This is due to large amounts of support space allocated for equipment and relatively low employee densities. Pursuant to the Transportation Access Plan Agreement dated October 15,1990, the Project will not add parking spaces in the LMA. Therefore the Project will not encourage the use of single-occupant vehicles for commuting.
- Traffic conditions on Huntington Avenue will be improved due to the relocation of the loading dock which will eliminate service vehicles which travel eastbound on Huntington Avenue from making U-turns at the median break near Longwood Avenue. These U-turns can cause traffic tie-ups and are in direct conflict with MBTA train operations on the Green Line.
- The Project will decrease the number of curb cuts on Huntington Avenue by consolidating loading dock activities with the existing loading dock accessed from Longwood Avenue.
- No new driveways will be built to support the Project.
- The pedestrian environment along Huntington Avenue will be enhanced through the elimination of the existing curb cuts which support existing School of Public Health loading docks, and improvements to the existing sidewalk areas via widening and construction of planters to support trees adjacent to the Project.
- Existing travel demand management strategies in place at the School of Public Health will be extended to people who work at the Project to further reduce vehicle-trip generation and minimize new parking demand.





# **Appendix**

# 1. Scoping Determination dated August 16, 1993

# 2. Project Drawings: dated August 16, 1993

L 1.1	Site Plan
A 2.0	Basement Floor Plan
A 2.1	Ground Floor Plan
A 2.2	First Floor Plan
A 2.3	Second Floor Plan
A 2.4	Third Floor Plan
A 2.5	Fourth Floor Plan
A 2.6	Typical Office Floor Plan (Floors 5-7)
A 2.7	Penthouse Plan
A 2.8	Roof Plan
A 2.9	Building Section
A 3.1	South Elevation (Huntington Avenue)
A 3.2	East Elevation
A 3.3	West Elevation
A 4.1	Site Plan Logistics
A 4.2	Site Sections AA
A 4.3	Site Sections BB

# 3. Survey Drawings:

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LS 1.1 Site Survey Entire Lot
LS 1.2 Site Survey Project Site
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# 4. B.R.A.D.A. Obstruction Diagrams

Lam Partners, Inc.

# 5. Draft Community Report dated October, 1993

# BOSTON REDEVELOPMENT AUTHORITY SCOPING DETERMINATION

# HARVARD SCHOOL OF PUBLIC HEALTH FRANCOIS-XAVIER BAGNOUD BUILDING

# SUBMISSION REQUIREMENTS FOR DRAFT PROJECT IMPACT REPORT

PROPOSED PROJECT: Francois-Xavier Bagnoud Building

PROJECT LOCATION: 677 Huntington Avenue on the corner of

Worthington Avenue (discontinued) and property owned by the President and Fellows of

Harvard College.

APPLICANT: Harvard School of Public Health

PNF SUBMISSION DATE: April 15, 1993

The Boston Redevelopment Authority ("BRA") is issuing this Scoping Determination pursuant to Section 31-5 of the Boston Zoning Code (the "Code"). The applicant filed a Project Notification Form ("PNF") on April 15, 1993. The Scoping Determination requests information required by the BRA for its review of the Proposed Project in connection with the following:

- (a) Development Review pursuant to Article 31 of the Code; and
- (b) Recommendations to the Board of Appeal with respect to the zoning relief requirements for the Proposed Project, pursuant to Articles 6 and 7 of the Code; and
- (c) Review of Harvard School of Public Health Master Plan update.

## **PREAMBLE**

The BRA is reviewing the Proposed Project pursuant to multiple sections of the Code. The Proposed Project is being reviewed pursuant to Article 31, Development Review Requirements, which sets out a comprehensive procedure for project review and requires the BRA to review the design, transportation, environmental, and other impacts of proposed projects. Article 31 requires the submission of a satisfactory Final Project Impact Report (FPIR) prior to the issuance of a building permit.

In addition, the Proposed Project requires zoning relief pursuant to Articles 6 and 7 of the Zoning Code.

### I. HARVARD SCHOOL OF PUBLIC HEALTH

The Harvard School of Public Health educates public health scientists and professionals to promote and preserve the public's health. The school pursues new discoveries to

prevent disease and to ameliorate its effects on populations and society. Faculty, staff and students of the school also strive to inform public debate on pressing health issues and to serve the needs of their communities. The school's work centers on five substantive areas: critical diseases, nutrition and healthy behaviors, health and the environment, health care, and world health.

The school consists of eleven academic departments, one division and one interdepartmental Master's Degree Program.

The current faculty totals 233, with an additional 500 research associates, administrative, professional and support staff that work at the school. A total of 653 students are enrolled in degree programs.

Since the last Harvard School of Public Health Building was added to the Harvard Longwood Campus in 1972, the School has grown dramatically, with no increase in the size of the campus.

The project is needed for the School to remain a strong academic and research institution for public health in the future. Specifically, the Project will relieve a considerable amount of overcrowding in research and office space, provide for needed classroom space and growth space for existing programs, as well as house the new Francois-Xavier Bagnoud Center for Health and Human Rights.

# II. FRANCOIS-XAVIER BAGNOUD BUILDING PROJECT DESCRIPTION

The Proposed Project is to be located on a site which is part of a larger parcel comprising approximately 642,138 square feet and bounded by Huntington Avenue, Longwood Avenue, Brigham and Women's Hospital, and Children's Hospital. The lot encompasses the Harvard Medical School, the Harvard Dental School, and the Harvard School of Public Health. The land area of the Project Site is approximately 16,300 SF and is currently used as a 30-car surface parking lot for the School of Public Health Building #2.

The Project is a new research and education building of 75,666 gross floor area (GFA) on a triangular shaped site adjacent to an existing School of Public Health laboratory building (SPH-2). The Project will house biomedical laboratories, core science support laboratories, classrooms, office and support space for both wet and analytical sciences in an eight story building with a mechanical penthouse, and an additional level below grade to house mechanical equipment.

# III. INSTITUTIONAL MASTER PLAN REQUIREMENT

The Francois-Xavier Bagnoud project will be incorporated as an update to the existing Harvard University Longwood Campus Master Plan.

In accordance with Section 27M of the Zoning Code, the Applicant is required to submit to the BRA for review an Institutional Master Plan. Since there already is a Master Plan for the Campus, the Applicant shall submit an update to this Master Plan. This update should include a projection at least eight years into the future of the Applicant's needs

for academic, service, research, housing, patient care, and parking facilities; a description of the uses, scale, and character of the proposed or potential development; and a parking management and mitigation plan as well as community benefits plan.

# IV. APPLICABLE ZONING PROVISIONS AND REQUIRED RELIEF

# A. Relief Under Current Zoning

The area in which the Proposed Project is located is currently zoned H-3. The Proposed Project requires zoning relief in the form of: (1) variances pursuant to Article 7 of the Code; and (2) conditional use permits pursuant to Article 6 of the Code which should be identified in the DPIR.

# V. COMMUNITY REVIEW OF THE PROPOSED PROJECT

The Proponent should provide a description of the intended community review process. The description should include the names of neighborhood groups and/or individuals who will be involved, the nature of their role, and a generalized schedule of the process. BRA staff and the Mayor's Office of Neighborhood Services (ONS) will work with the Harvard School of Public Health, the Mission Hill PZAC and the residents of the Fenway neighborhood to facilitate community review of the Proposed Project.

# VI. DEVELOPMENT REVIEW REQUIREMENTS - ARTICLE 31

# SUBMISSION REQUIREMENTS

In addition to full-size scale drawings, 15 copies of a bound booklet containing all submission materials reduced to size 8-1/2" x 11", except where otherwise specified. In addition, an adequate number of copies must be available for community review. The booklet should be printed on both sides of the page. A copy of this Scoping Determination should be included in the booklet.

# A. GENERAL INFORMATION

- 1. Applicant Information
  - a. Development Team
    - (1) Names
      - (a) Developer (including description of development entity and type of corporation)
      - (b) Attorney
      - (c) Project consultants
    - (2) Business address and telephone number for each

- (3) Designated contact for each
- (4) Description of currently- or formerly-owned developments in Boston

## b. Legal Information

- (1) Legal judgments or actions pending concerning the Proposed Project
- (2) Evidence of site control over the project area, including current ownership and purchase options of all parcels in the proposed project, all restrictive covenants and contractual restrictions affecting the proponent's right or ability to accomplish the proposed project and the nature of the agreements for securing parcels not owned by the prospective developer.
- (3) Nature and extent of any and all public easements into, through, or surrounding the site.

## 2. <u>Financial Information</u> (See Appendix 1 for required financial information)

Development and Operating Pro Formas must be provided for the proposed project.

- a. Full disclosure of names and addresses of all financially involved participants and bank references
- b. Development Pro Forma
- c. Ten (10) Year Operating Pro Forma

## 3. Project Area

a. Description of metes and bounds of project area or certified survey of project area

### 4. Public Benefits

- a. Voluntary development Impact Project Contribution and Jobs Contribution Grant specifying amount of housing linkage and jobs linkage contributions and method of housing linkage contribution (housing payment or housing creation).
- b. Adjustment in tax revenues, specifying existing and estimated future Payment In Lieu of Taxes (Pilot)
- c. Anticipated employment levels including the following:
  - (1) Estimated number of construction jobs

- (2) Estimated number of permanent jobs
- d. Other public benefits, if any, to be provided.

# 5. Regulatory Controls and Permits

- Existing zoning requirements, zoning computation forms, and any anticipated requests for zoning relief should be explained.
- b. Anticipated permits required from other local, state, and federal entities with a proposed application schedule should be noted.
- c. If the Proposed Project becomes subject to the Massachusetts Environmental Policy Act (MEPA), required documentation should be provided including copies of the Environmental Notification Form and a proposed schedule for coordination with BRA procedure.

# 6. Community Groups

- a. Names and addresses of project area owners, displacees, abutters, and also any community groups which, in the opinion of the applicant, may be substantially interested in or affected by the proposed project
- b. A list of meetings proposed and held with interested parties

# B. URBAN DESIGN COMPONENT

As a prelude to the discussion of urban design issues related to the Proposed Project, the Proponent is requested to provide narrative information on: (1) the need for the Proposed Project; (2) consideration given to alternatives to the Proposed Project; and (3) consideration given to alternative locations for the Proposed Project.

The proposed project elements should be developed so as to (1) strengthen the overall urban design character of the site, (2) enhance the relationships among existing buildings; and (3) augment the existing pedestrian environment.

In order to determine that the proposed project: (a) is architecturally compatible with surrounding structures; (b) exhibits an architectural concept that enhances the urban design features of the area in which it is located; and (c) augments the quality of the pedestrian environment, the following items must be submitted:

- 1. Written description of program elements and space allocation for each element.
- Plan for the surrounding area and district and sections at an appropriate scale (1" = 50' or larger) showing relationships of the proposed project to the surrounding area and district:

- a. massing
- b. building height
- c. open space
- d. major topographic features
- e. pedestrian and vehicular circulation
- f. land use
- 3. Black and white 8"x10" photographs of the site and neighborhood
- 4. Sketches and diagrams to clarify design issues and massing options
- 5. Eye-level perspective (reproducible line drawings) showing the proposal in the context of the surrounding area
- 6. Aerial views of the project
- 7. Site sections at 1" = 20' or larger showing relationships to adjacent buildings and spaces
- 8. Site plan at an appropriate scale (1" = 20' or larger) showing:
  - a. general relationships of proposed and existing adjacent buildings and open space.
  - b. general location of pedestrian ways, driveways, parking, service areas, streets, and major landscape features.
  - c. pedestrian, handicapped, vehicular and service access and flow through the parcel and to adjacent areas.
  - d. survey information, such as existing elevations, benchmarks, and utilities.
  - e. construction limits.
- Massing model at 1" = 100' for use in the Authority's base model and a study model at 1" = 16' showing facade design.
- 10. Drawings at an appropriate scale (e.g., 1" = 8') describing architectural massing, facade design and proposed materials including:
  - a. building and site improvement plans.
  - b. elevations in the context of the surrounding area.

- c. sections showing organization of functions and spaces.
- d. preliminary building plans showing ground floor and typical upper floor(s).
- 11. Proposed schedule for submittal of design development materials.

### C. ENVIRONMENTAL PROTECTION COMPONENT

### 1. Wind

A qualitative analysis of the potential wind impacts of the proposed project at the pedestrian level shall be required for the Draft Project Impact Report. This analysis shall determine potential pedestrian level winds adjacent to and in the vicinity of the project site and shall identify any areas where wind velocities are expected to exceed acceptable levels, including the Authority's guideline of an effective gust velocity of 31 mph not to be exceeded more than 1% of the time.

Areas of interest for the analysis shall include public and other areas of pedestrian use, including, but not limited to, entrances to the project building, sidewalks adjacent to and in the vicinity of the project building, and pedestrian areas in the vicinity of the project development.

For areas where wind speeds are projected to exceed acceptable levels, measures to reduce wind speeds and to mitigate potential adverse impact shall be identified.

Should the qualitative analysis indicate the possibility of excessive pedestrian level wind speeds, additional studies, including quantitative wind tunnel testing, may be required for the Final Project Impact Report.

#### 2. Shadow

A shadow analysis shall be required for existing and build conditions for the hours 9:00 a.m., 12:00 noon, and 3:00 p.m. for the vernal equinox, summer solstice, autumnal equinox, and winter solstice. It should be noted that due to time differences (daylight savings vs. standard), the autumnal equinox shadows would <u>not</u> be the same as the vernal equinox shadows and therefore separate shadow studies are required for the vernal and autumnal equinoxes.

The shadow impact analysis must include net new shadow as well as existing shadow and must clearly show the incremental impact of the proposed new building. For purposes of clarity, new shadow should be shown in a dark, contrasting tone distinguishable from existing shadow. Shadow from existing buildings in the vicinity of the new building also shall be shown. A North arrow should be provided.

Particular attention shall be given to existing or proposed public open spaces and major pedestrian areas, including, but not limited to, the sidewalks adjacent to and in the vicinity of the proposed project and pedestrian areas and other public open spaces within the project vicinity.

Design or other mitigation measures to limit or avoid any adverse shadow impact shall be identified.

## 3. Daylight Analysis

A daylight analysis is required, taking at least one viewpoint. This viewpoint should be taken from Huntington Avenue, centered on the proposed building facade. Comparison should be made to values for both existing conditions and either the existing zoning "envelope" for the site, or structures of comparable size in the area. (A comparison to downtown values is not appropriate.) The BRADA program must be used. Further discussion of the benefits of employee or student and visitor daylight access is requested.

# 4. Solar Glare

An analysis of the potential for solar glare from the glazing and building materials of the proposed project and of the impacts of any resultant solar glare shall be required. The purpose of this analysis shall be to measure reflective glare from the building's facade onto nearby streets and arterials in order to determine the potential for visual impairment due to reflective spot glare. The principal area of interest is Huntington Avenue. Mitigation measures to eliminate any adverse reflective glare shall be identified.

# 5. Air Quality

A future air quality (carbon monoxide) analysis shall be required for any intersection where level of service is expected to deteriorate to D and the project causes a 10 percent increase in traffic or where the level of service is E or F and the project contributes to a reduction of LOS. The methodology and parameters of the traffic-related air quality analysis shall be approved in advance by the Massachusetts Department of Environmental Protection and the Boston Redevelopment Authority. Mitigation measures to eliminate or avoid any violation of air quality standards shall be described.

A description of the exhaust system of the project's research laboratories, including location of intake and exhaust vents and specifications, and an analysis of the impact on pedestrian level air quality from operation of the exhaust systems, including a downwash analysis, shall be required. Potential emissions of any air contaminants from the project's laboratories shall be identified and quantified. Measures to prevent or control the release of such contaminants and to avoid any violation of air quality standards shall be described.

# 6. Water Quality

Sewage from the proposed project may include process waste water from laboratories and miscellaneous diluted biological materials from lab sinks. The DPIR shall identify the biological and chemical components which will be discharged into the sanitary waste stream and shall quantify their anticipated concentrations. Measures to

eliminate the introduction of contaminants into the waste stream, as well as to prevent the disposal of hazardous substances (such as organic liquids and low-level radioisotopes) shall be described. An explanation of how biological materials are inactivated and how the inactivation process is verified also shall be required.

Federal, State, and municipal permits regulating sewer connection, use, and discharges shall be described.

### 7. Solid and Hazardous Wastes

The presence of any contaminated soil or groundwater shall be evaluated and remediation measures to ensure their safe removal and disposal shall be described. The assessment of site conditions pursuant to the requirements of M.G.L. Chapter 21E should be included in the DPIR, if available.

The DPIR shall describe the generation, storage, and disposal of all solid wastes from the operation of the proposed project, with particular emphasis on the generation of any hazardous wastes or contaminants, including chemical, radioactive, and biological wastes, from research activities. The DPIR shall identify the specific nature of the hazardous wastes and the quantities to be generated and shall describe the management and disposal of these wastes. Measures to prevent the release of any contaminants shall be described.

In addition, measures to promote the reduction of waste generation and recycling, particularly for paper and other recyclable products, shall be described in the DPIR.

### 8. Noise

An analysis of the potential noise impacts from the project's mechanical and exhaust systems and compliance with applicable regulations of the City of Boston shall be required. A description of the project's mechanical and exhaust systems and their location shall be included. Measures to minimize and eliminate adverse noise impacts on nearby sensitive receptors shall be described.

## 9. Geotechnical Impact

An analysis of existing sub-soil conditions, groundwater levels, potential for ground movement and settlement during excavation, and potential impact on adjacent buildings and utility lines shall be required. This analysis shall also include a description of the foundation construction methodology, the amount and method of excavation, and measures to prevent any adverse effects on adjacent buildings and utility lines. The need to underpin or otherwise protect adjacent buildings from excavation activities shall be described.

Measures to ensure that groundwater levels will not be lowered during or after construction also shall be described.

## 10. Construction Impacts

A construction impact analysis shall include a description and evaluation of the following:

- (1) potential dust and pollutant emissions and mitigation measures to control these emissions.
- (2) potential noise impact and mitigation measures to minimize increase in noise levels.
- (3) location of construction staging areas and construction worker parking.
- (4) construction schedule, including hours of construction activity.
- (5) access routes for construction trucks and anticipated volume of construction truck traffic.
- (6) generation and disposal of excavation and construction debris, including potential for the recycling of any debris.
- (7) impact of project construction on rodent populations and description of the proposed rodent control program, including frequency of application and compliance with applicable City and State regulatory requirements.
- (8) measures to protect the public safety.

# D. <u>INFRASTRUCTURE SYSTEMS COMPONENT</u>

An infrastructure impact analysis must be performed. The discussion of Proposed Project impacts on infrastructure systems should be organized system-by-system as suggested below. The applicant's submission must include an evaluation of the Proposed Project's impact on the capacity and adequacy of existing water, sewerage, energy (including gas and steam), and electrical communications (including telephone, fire alarm, computer, cable, etc.) utility systems, and the need reasonably attributable to the proposed project for additional systems facilities.

Any system upgrading or connection requiring a significant public or utility investment, creating a significant disruption in vehicular or pedestrian circulation, or affecting any public or neighborhood park or streetscape improvements, comprises an impact which must be mitigated. The DPIR must describe anticipated impacts in this regard, including specific mitigation measures, and must include nearby Proposed Project buildout figures in the analysis. Communications with utilities should be documented.

In the case of the FXB project, particular consideration should be given to the location and configuration of connections (existing vs. new, etc.), analysis of the project's infrastructure system impacts with specific regard to total projected capacity and

demand of those systems, and construction dewatering impacts. Available information regarding control of potential contaminant discharge is requested.

## 1. Water and Sewer Systems

The Water and Sewer Systems Analysis must include the following:

- a. Estimated water consumption and sewerage generation from the Proposed Project and the basis for each estimate. Include separate calculations for air conditioning system make-up water.
- b. Description of the capacity and adequacy of water and sewer systems and an evaluation of the impacts of the Proposed Project on those systems. This evaluation should take into account the age of the system components adjacent to the site. Diagrams of the subject systems, showing proposed or existing connections, should be included.
- c. Identification of measures to conserve resources, including any provisions for recycling.
- d. Description of the Proposed Project's impacts on the water quality of the Muddy River or other water bodies that could be affected by the project. Include the impact of on-site storm drainage on water quality. Description of mitigation measures to reduce or eliminate impacts on water quality.
- e. Brief description of fire protection system and connections, as well as other emergency systems.

Water supply systems adjacent to the project and servicing the project should be looped so as to minimize public hazard or inconvenience in the event of a main break.

# 2. <u>Energy Systems</u>

The Energy Systems Analysis must include the following:

- a. Description of energy requirements of the project and evaluation of project impacts on resources and supply. Information is required regarding MATEP's ability (assuming MATEP to be the supplier) to supply electrical and thermal energy for project needs.
- b. Description of measures to conserve energy usage and consideration of the feasibility of including solar energy provisions or other on-site energy provisions.
- c. Detail the energy source of the interior space heating; how obtained, and, if applicable, plans for reuse of cooling system condensate.

d. Brief description of emergency power capabilities.

The location of transformer and other vaults required for electrical distribution or ventilation must be chosen to minimize disruption to pedestrian paths and public improvements both when operating normally and when being serviced, and must be described.

3. Other systems should be included in similar analyses if applicable: gas, steam, telephone, cable, fiberoptic communications, etc.

# E. TRANSPORTATION ACCESS PLAN

See attached document and requirements



TRANSPORTATION DEPARTMENT HARVARD SCHOOL OF PUBLIC HEALTH FRANCOIS-XAVIER BAGNOUD BUILDING

ONE CITY HALL PLAZA/ROOM 721 BOSTON, MASSACHHISETTS 02201 (617) 725-4680/FAX (617) 523-4475

### ACCESS PLAN SCOPE

Harvard University School of Public Health proposes to construct a new research and education building of 75,666 square feet adjacent to the existing School of Public Health. This Access Plan Scope outlines information which must be provided in connection with the project. The information presented in this Access Plan, along, with other information prepared in connection with the Harvard Medical School's proposal to develop the English School site, may be used to supplement the Harvard Medical School Transportation Master Plan referred to in Section 4 below.

#### SCOPE OF WORK

The developer must evaluate the transportation impacts associated with the proposed project. The results of this evaluation will be documented in an Access Plan prepared for submission to the Boston Transportation Department (BTD). The report will include the following:

- O A definition of existing traffic, transit, and parking conditions.
- o An evaluation of the project's long-term impacts on traffic, transit and pedestrian activities as well as on parking demand.
- o An evaluation of the project's short-term traffic impacts related to construction activity.
- o Identification of appropriate measures to mitigate project impacts, including long-term project impact monitoring.

In the preparation of the Access Plan, use should be made of all available existing studies and data.

#### STUDY AREA

The following intersections will be studied:

- a. Longwood/Huntington/St.Alphonsus/McGreevey
- b. Francis/Huntington/Tremont/Calumet
- c. Huntington/Louis Prang/Ruggles



### DEFINITION OF TASKS

Task 1. Description of Existing Transportation Conditions

The Existing Conditions component will present data on the various transportation systems within the study area, and will provide measures of levels of service, available capacity and other analysis as appropriate to identify any current deficiencies in those systems.

1.1 Traffic. Available traffic volume counts will be supplemented with new counts, as necessary. Based on data gathered from all sources, a preliminary base traffic volume network will be developed to represent existing morning, evening and weekend peak hour conditions.

Vehicle trip generation characteristics of the existing Harvard School of Public Health will be determined by survey.

Capacity analysis will be performed to determine level of service at all study area intersections.

1.2 Parking. Public parking supply within walking distance of the project site will be defined. The parking inventory will distinguish between on-street (metered and unregulated) and off-street (commercial) spaces. Availability of public spaces will be determined by reference to published sources such as the 1987 Longwood Medical Area Transportation Study, supplemented and updated as necessary with survey data.

Parking demand and supply for the existing Harvard School of Public Heath will be detailed. Parking facilties used by SPH employees, students and affiliates will be presented by capacity, average daily occupancy, number and percent of SPH-associated parkers, cost to SPH-associated parkers, turnover rate, hour of peak occupancy, and location of high-occupancy vehicle spaces.

- 1.3 Transit. The operating characteristics of the area's private bus carrier services and Massachusetts Bay Transportation Authority (MBTA) services will be documented.
- 1.4 Pedestrians. Pedestrian conditions on sidewalks and intersections adjacent to the site will be described. Describe major pedestrian corridors to and pathways within the site. Estimate volumes of pedestrians using same. Describe conditions of corridors, including any deficiencies or barriers.

Pedestrian counts will be taken at the following crossings and sidewalk locations:

- a. Longwood/Huntington/St.Alphonsus/McGreevey
- b. Francis/Huntington/Tremont/Calumet
- c. SPH main entrance

### Task 2. Evaluation of Long-Term Transportation Impacts

The traffic impacts of the proposed development will be analyzed in detail. Expected long-term transportation conditions in the study area will be estimated and evaluated. Impacts of traffic generated by the project will be analyzed in detail and presented in comparison with existing conditions and a "No-Build" scenario, which would represent the situation at the horizon year if the project site were to remain in its current use.

- 2.1 Trip Generation. The proposed uses of the site will be evaluated to determine the project's person-trip generation characteristics, which will be translated into vehicle trips by use of modal split and vehicle occupancy assumptions consistent with those used for other previously submitted Access Plans, or otherwise as approved by the BTD. Trip origins will be assigned to appropriate locations on the site (e.g., valet operations will be distinguished from self-park operations at off-site facilities).
- 2.2 Trip Distribution. As with trip generation, trip distribution should be performed specifically for the project site. Estimations should be made of the probable origin of work and non-work trips to the site, on the basis of potential employee pool and the marketing characteristics of the retail space. Trip distribution is most appropriately described in terms of corridor of origin, e.g. Northwest, Southeast, etc.
- 2.3 Conditions to be Analyzed. In addition to existing conditions, the following future conditions will be analyzed at the Study Intersections:
  - a. No-Build (with only background projects anticipated to be completed included).
  - b. Full-Build (with the addition of project-related impacts).

The Build scenario must show the AM, PM and weekend peak hour levels of service at the Study Intersections under each of the roadway alternatives examined.

- 2.4 Background Development Projects. Any previously approved building construction projects to be included in the No-Build evaluation will be reviewed with Boston Redevelopment Authority and BTD staff prior to the analysis.
- 2.5 Evaluation of Transportation Impacts. New trips expected to be attracted to the proposed development will be added to demands carried by the existing roadway system plus new trips from background projects. Morning, evening and weekend peak hour and daily increases will be developed and analyzed for all travel modes.
  - 2.5.1 Traffic Impacts. Volume-to-capacity ratio (v/c), available reserve capacity (ARC), level of service (LOS) and delay calculations at, and queue lengths between, the study intersections.
  - 2.5.2 <u>Site Circulation</u>. A detailed site plan will be provided, showing proposed location of all vehicular and pedestrian access, drop-off or valet service locations, taxi waiting areas, delivery points, and internal pedestrian circulation.
  - 2.5.3 <u>Transit</u>. The usage of public transportation will be described, and the impact of the project on transit services.
  - 2.5.4 <u>Pedestrian Impacts</u>. Pedestrian volumes generated by the project will be presented. Future volumes and pedestrian levels of service will be projected for the locations and crossings identified in section 1.4 will be projected. Indicate impact of new pedestrian trips on pedestrian levels of service and amenities.

Pedestrian paths and corridors across and through the project site will be identified on a site plan.

- 2.5.5 <u>Trucks and Service Vehicles</u>. Truck and service vehicle traffic to the site will estimated. Access and egress for emergency vehicles will also be evaluated.
- 2.6 Parking Impacts. Demand for parking generated by the proposed project will be calculated. Parking supply will be identified, for employees, students and affiliates (research fellows, visiting faculty, etc.). Parking operations will be described in detail.

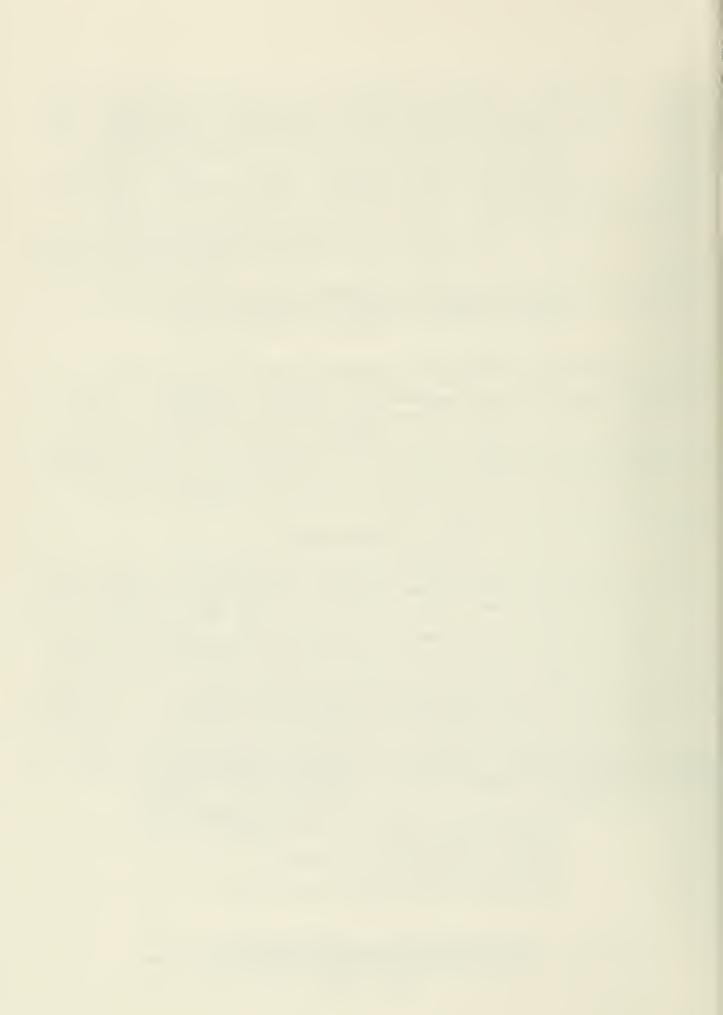
- 2.6.1 Parking demand generated by project by use, both long-term and short-term. On the basis of the traffic volumes projected in section 2.1 above, and using appropriate turnover rates, estimate project-generated parking demand in horizon year. Indicate user type (faculty, staff, student, etc.). Extent to which parking is or can be shared, both among SPH affiliates and between SPH and other users, will be discussed.
- 2.6.2 Displacement of existing on-site spaces will be noted, and replacement of same at new off-site locations.
- 2.6.3 Proposed management plan for parking facilities. Rates for spaces and plan for allocating spaces in facilities will be given.
- 3. Evaluation of Short-Term Impacts (Construction Period)

The transportation assessment will evaluate the impacts of the project during the construction period, including: mode of arrival for construction workers; parking provisions for construction workers and construction materials deliveries; frequency, times and routes of truck movements and construction materials deliveries; temporary storage of construction equipment and materials; the need for full or partial street closures or street occupancy during construction will be defined.

## 4. Development of Mitigation Measures

In order to bring up to date the 1989 Transportation Study, a new Transportation Master Plan for Harvard University holdings in the Longwood Medical Area will be required by the BRA and the City. As a condition of the approval of the SPH project, to be memorialized in the Access Plan Agreement for the project between SPH and BTD, Harvard University must agree to submit the updated Transportation Master Plan within one year of the issuance of a building permit for the SPH or the English School site, whichever comes last. The Transportation Master Plan, whose draft scope may appended to the Access Plan Agreements, will analyze and evaluate the transportation impacts associated with all operations of the facilities owned or operated by Harvard University within the Longwood Medical Area (LMA). Programs or strategies to reduce the transportation impacts will be developed and may include the following:

- o Measures to minimize vehicle-trip generation.
- o Roadway/traffic operation improvements.
- o Transit improvements.
- o Parking management improvements.
- o Pedestrian improvements.
- o Long-term project impact monitoring.

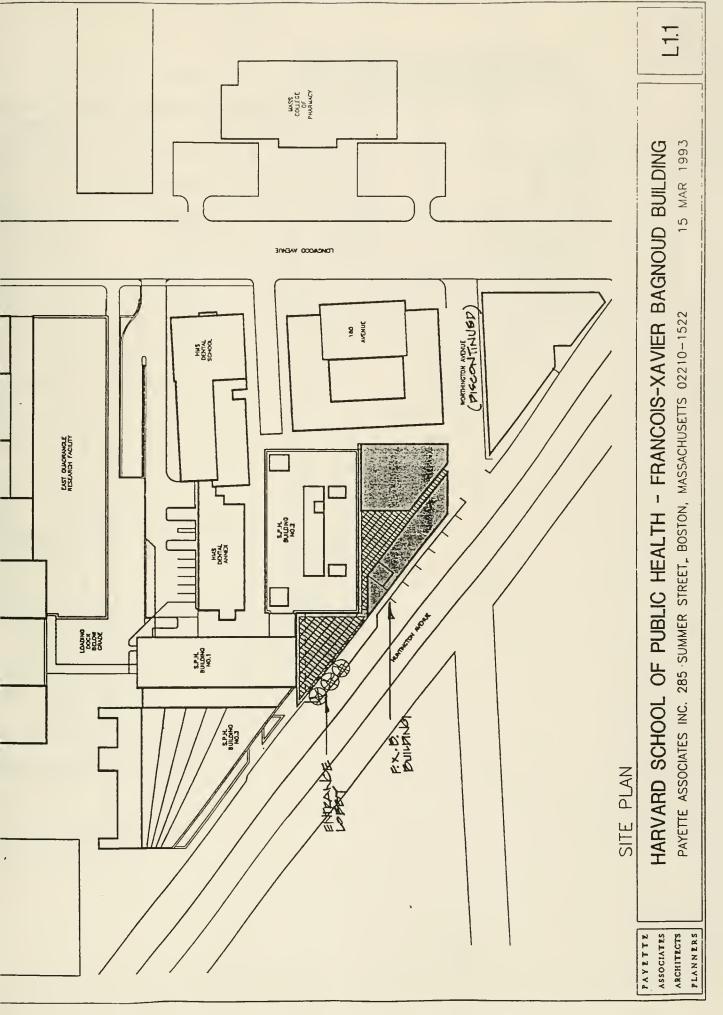


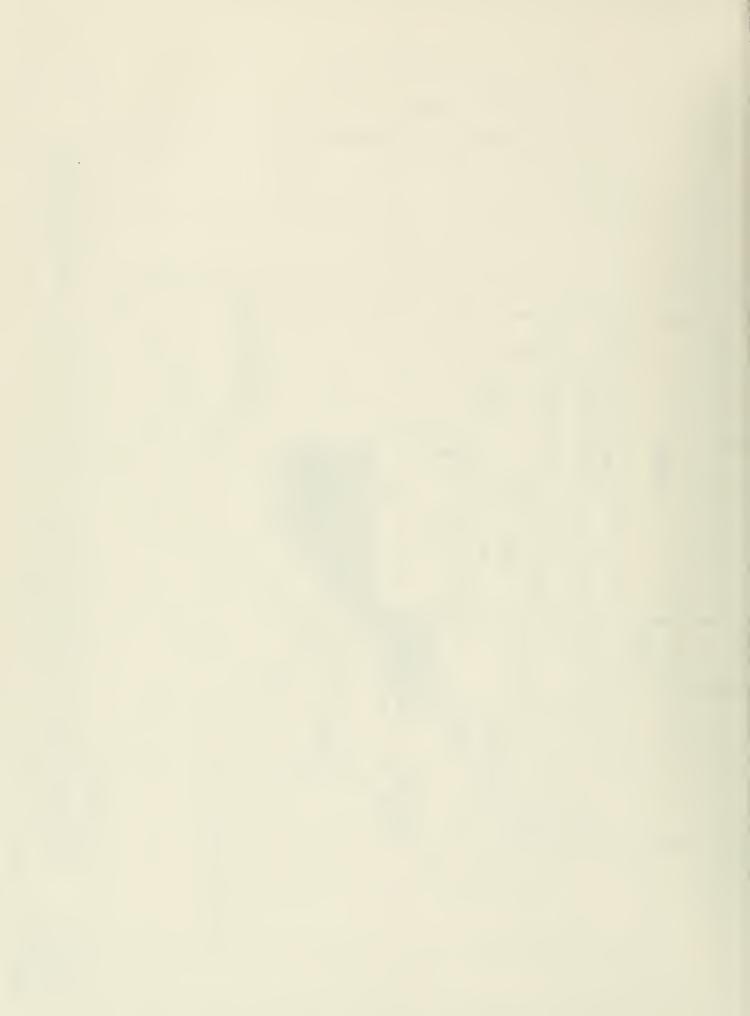
# 2. Project drawing List

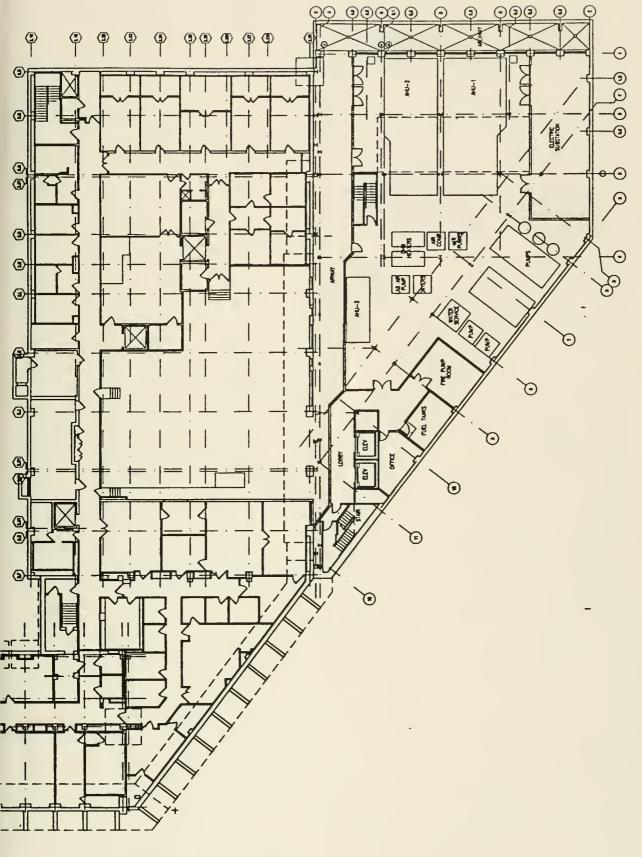
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- A2.0 Basement Floor Plan
- A2.1 Ground Floor Plan
- A2.2 First Floor Plan
- A2.3 Second Floor Plan
- A2.4 Third Floor Plan
- A2.5 Fourth Floor Plan
- A2.6 Typical Office Floor Plan (Floors 5-7)
- A2.7 Penthouse Plan
- A2.8 Roof Plan
- A 2.9 Building Section
- A 3.1 South Elevation (Huntington Avenue)
- A 3.2 North Elevation
- A 3.3 West Elevation
- A 4.1 Site Plan Logistics
- A 4.2 Site Sections AA
- A 4.3 Site Sections BB









BASEMENT FLOOR PLAN

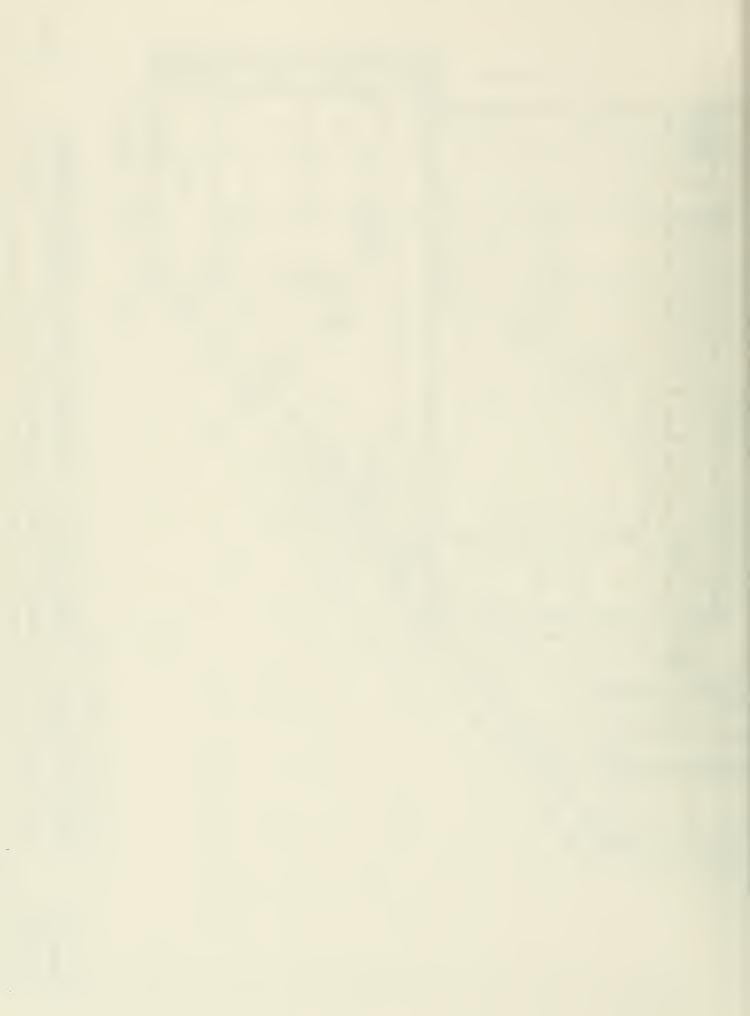
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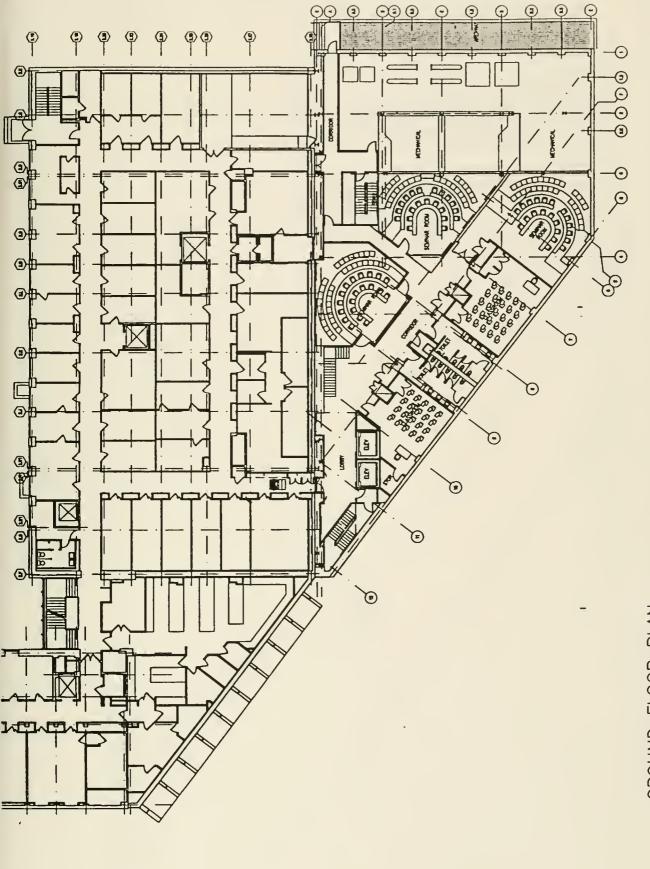
ASSOCIATES

ARCHITTCTS PLANNERS

HARVARD SCHOOL OF PUBLIC HEALTH - FRANCOIS-XAVIER BAGNOUD BUILDING

PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522





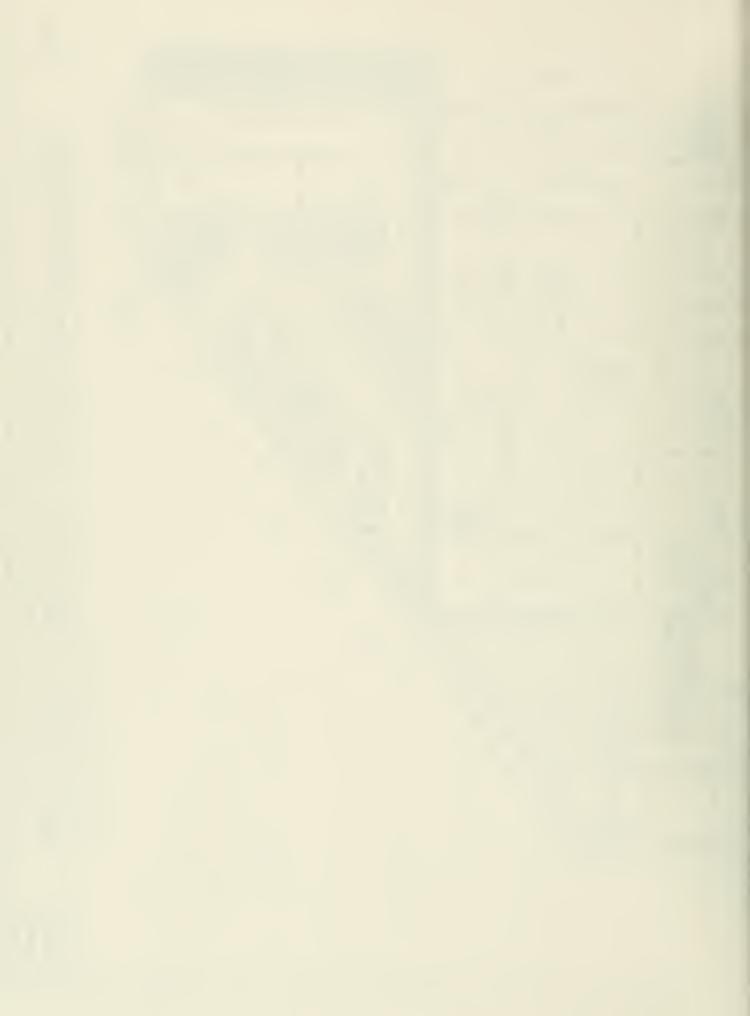
GROUND FLOOR PLAN

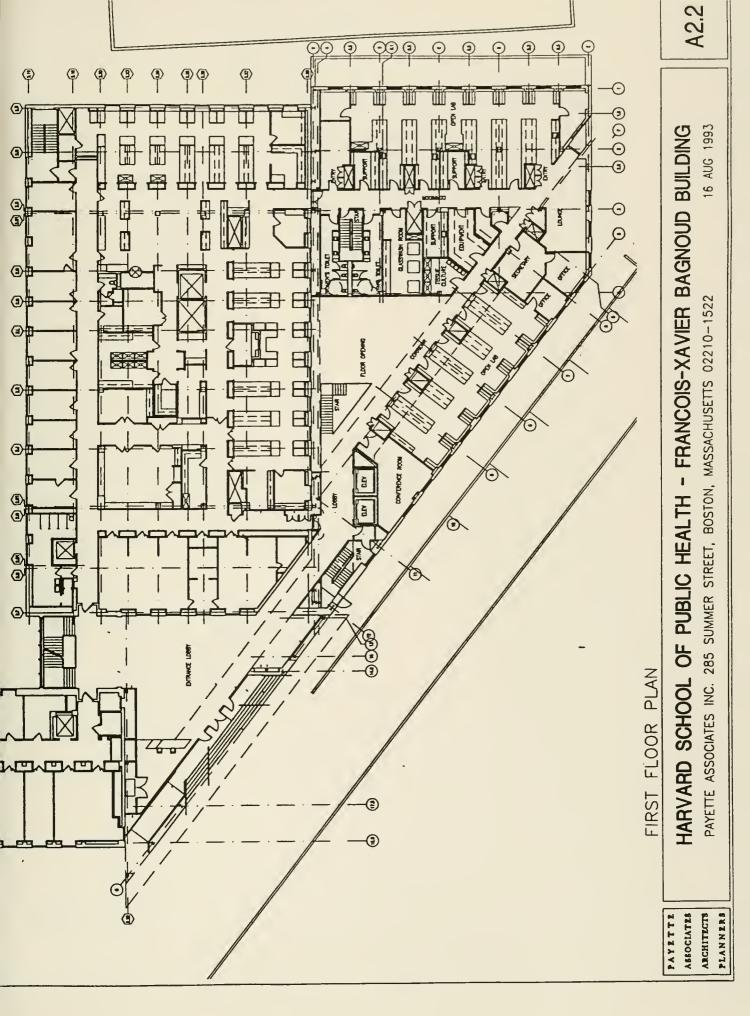
HARVARD SCHOOL OF PUBLIC HEALTH - FRANCOIS-XAVIER BAGNOUD BUILDING

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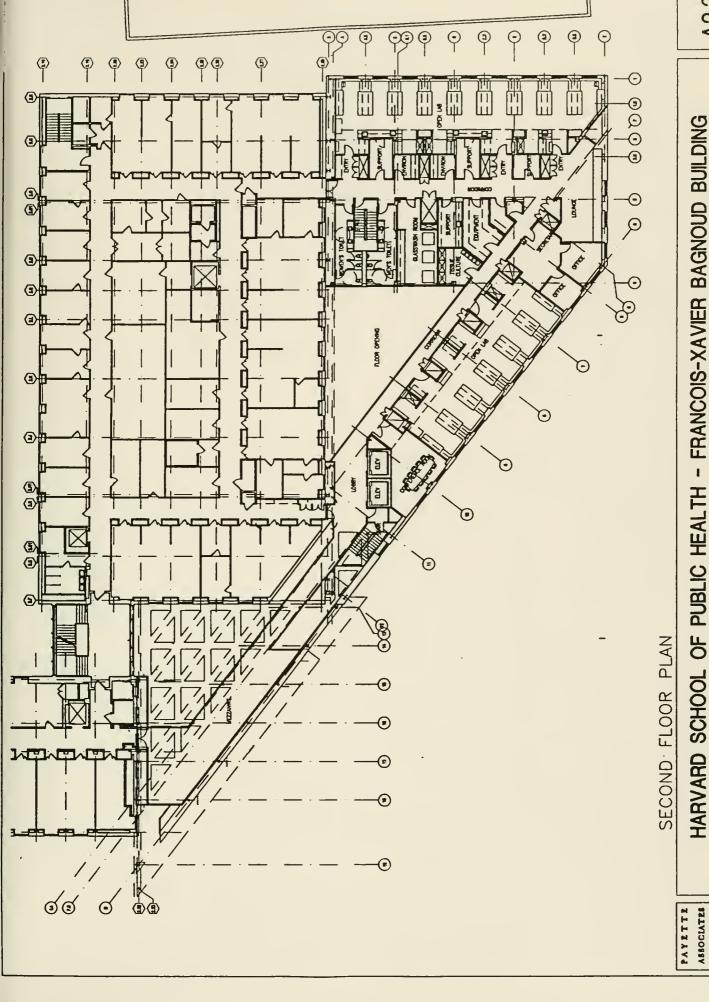
PAYETTE ABBOCIATES ARCHITECTS

PLANNERS









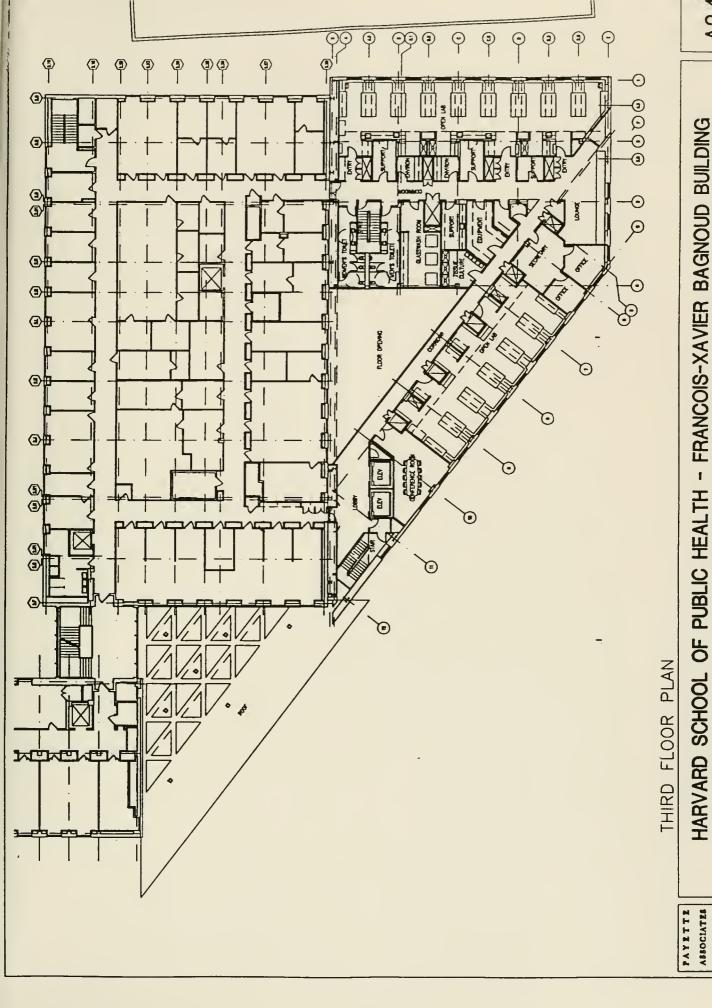
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16 AUG 1993

PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522

ASSOCIATES ARCHITECTS PLANNERS

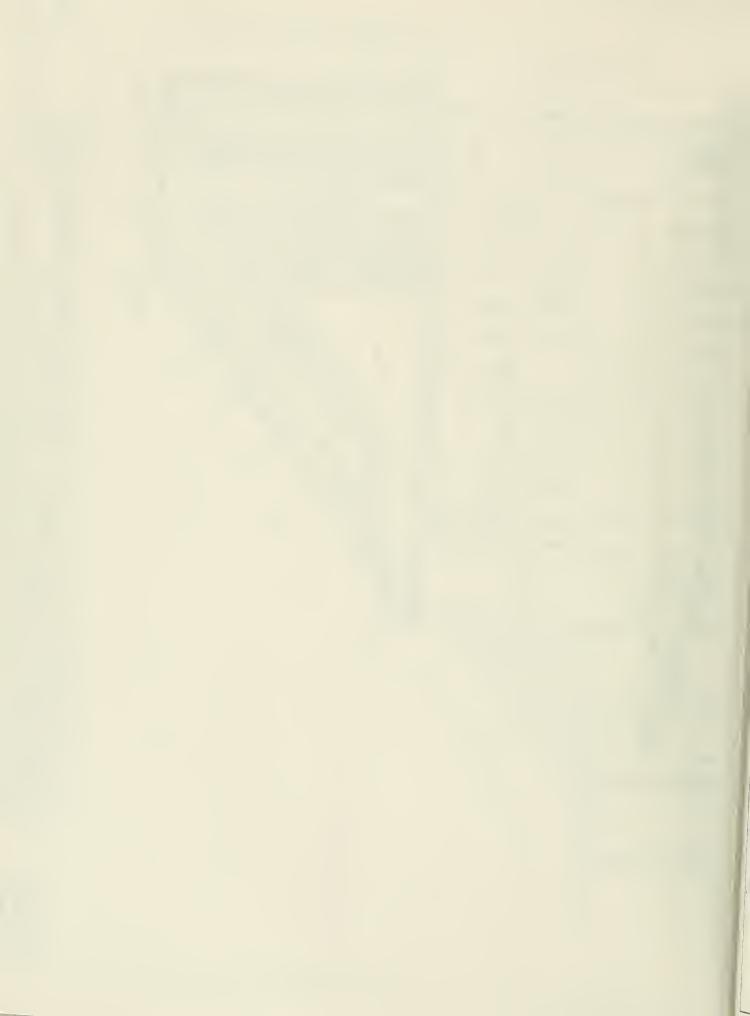


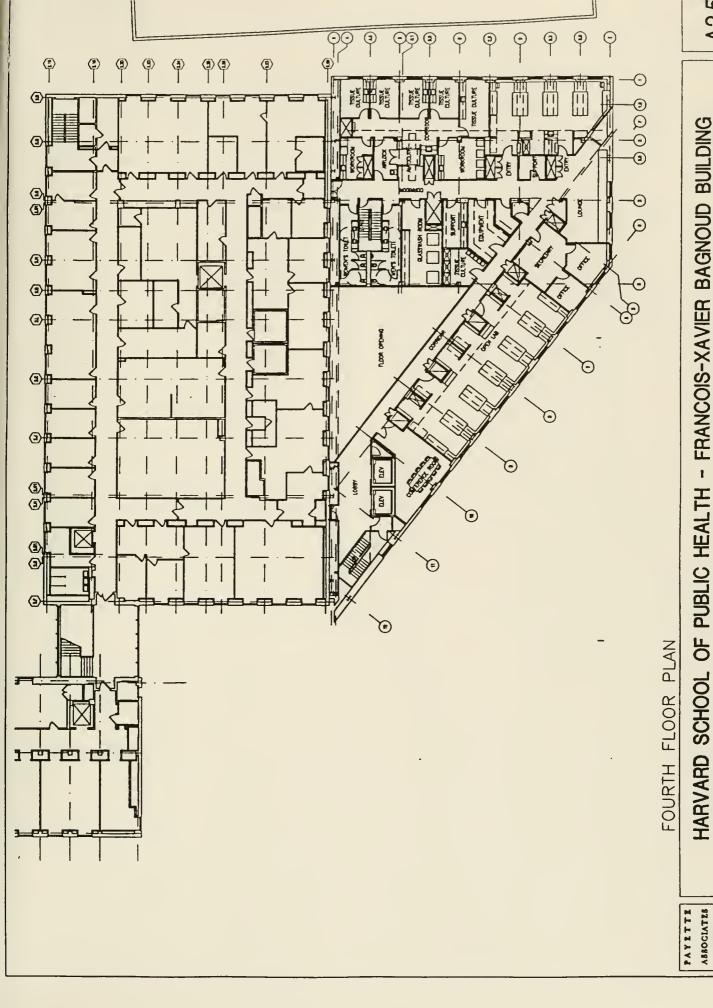


PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522

PLANNERS

ARCHITECTS



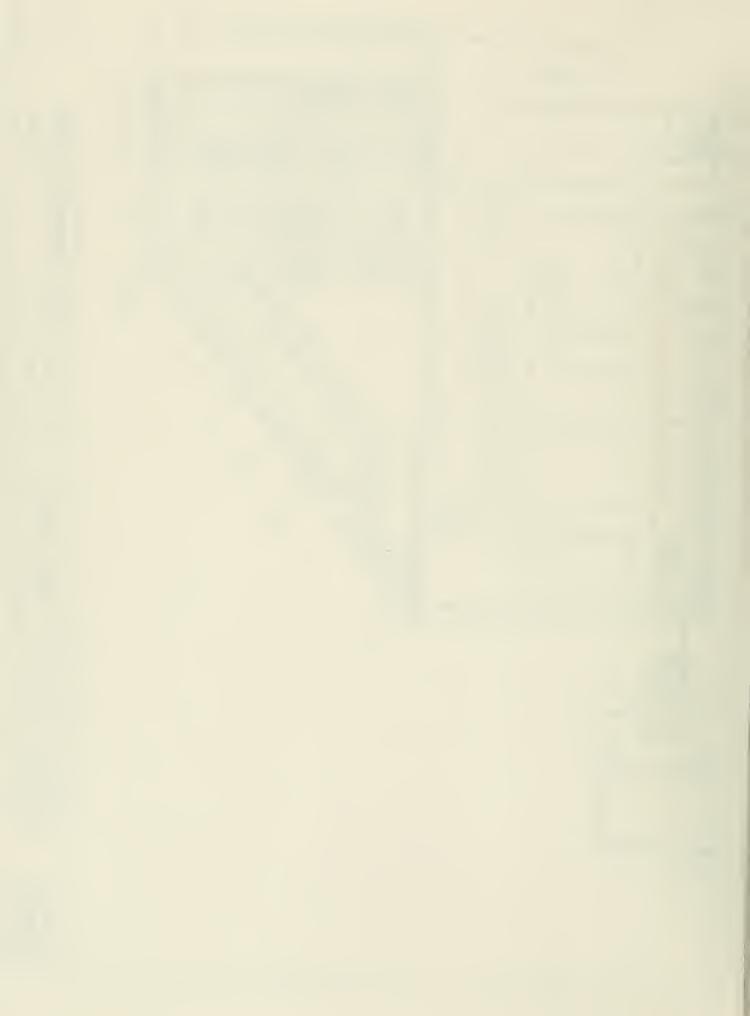


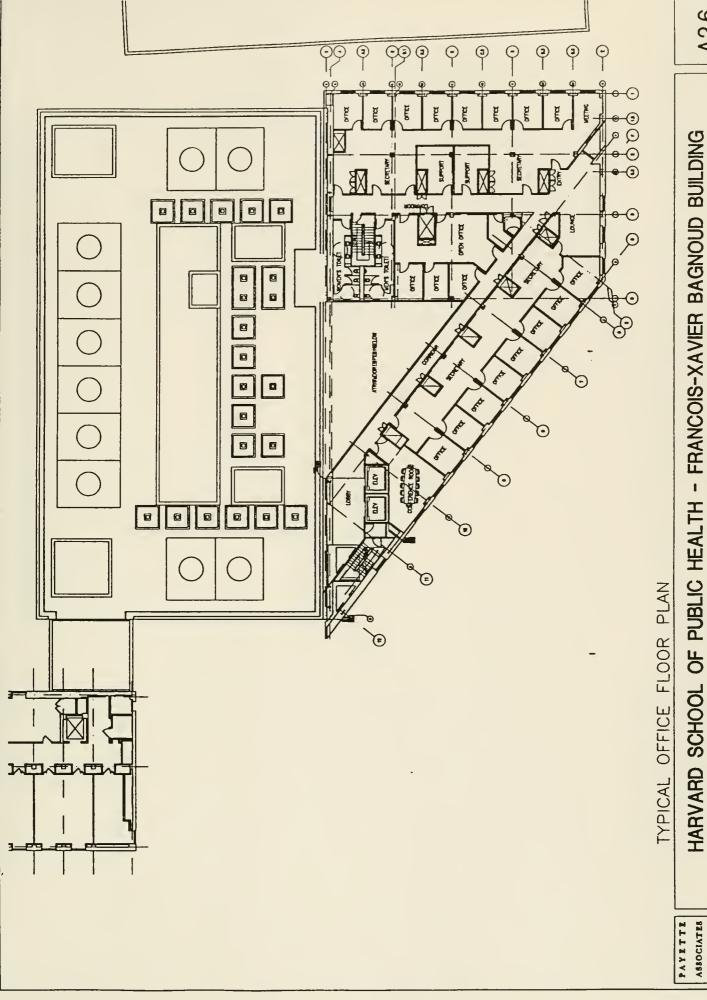
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16 AUG 1993

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PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522



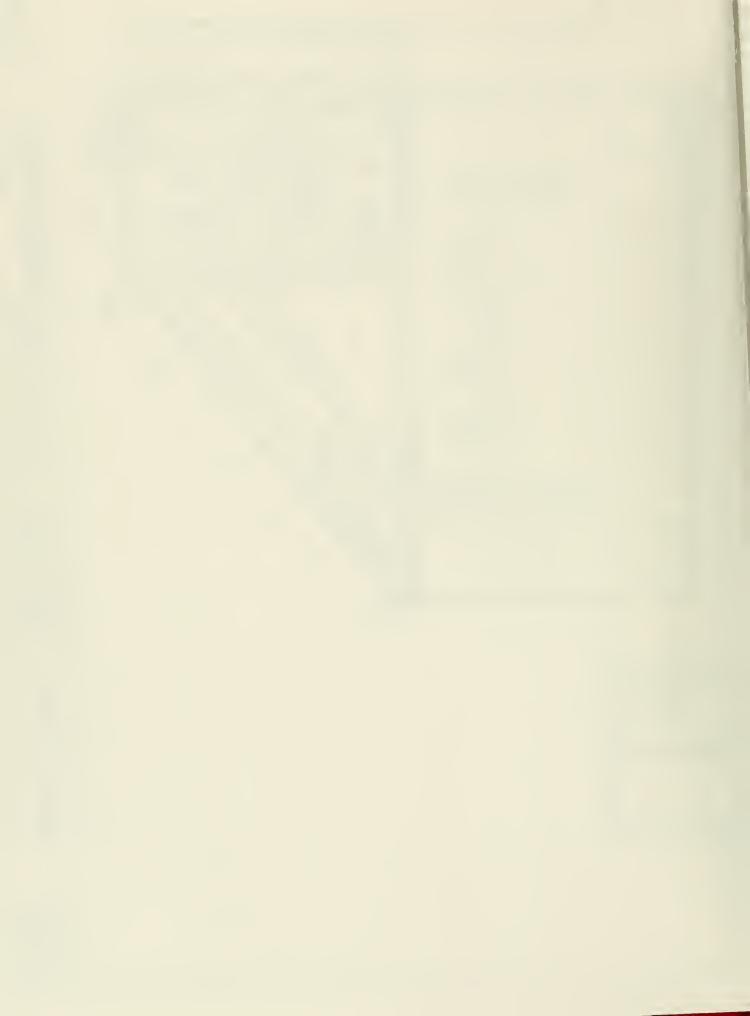


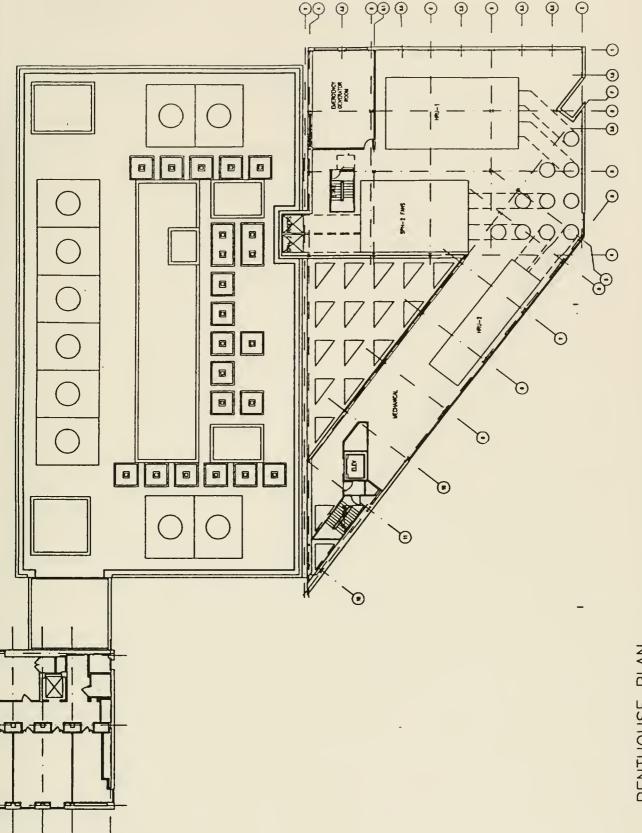
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16 AUG 1993

PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522

ARCHITZCTS PLANNERS

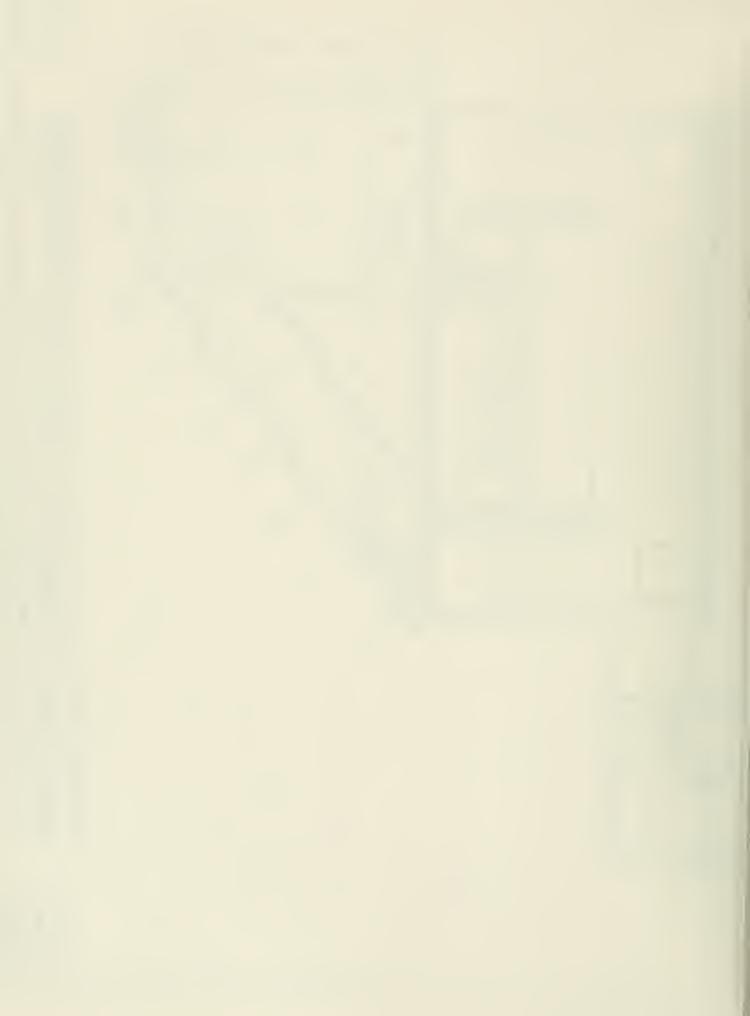


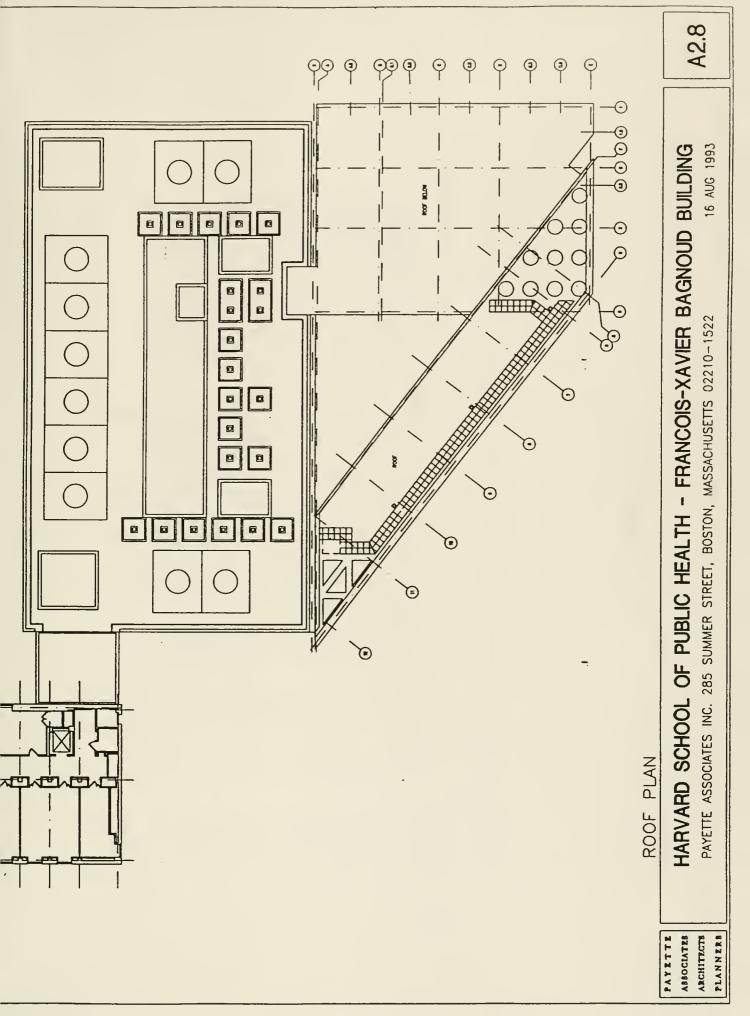


PENTHOUSE PLAN

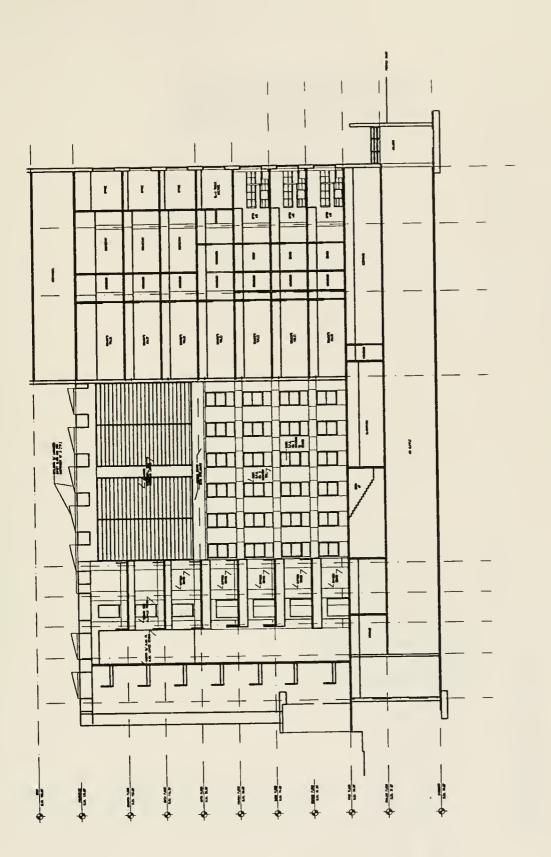
16 AUG 1993 HARVARD SCHOOL OF PUBLIC HEALTH - FRANCOIS-XAVIER BAGNOUD BUILDING PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522

PAYETTE ABBOCIATES ARCHITECTS PLANNERS









BUILDING SECTION

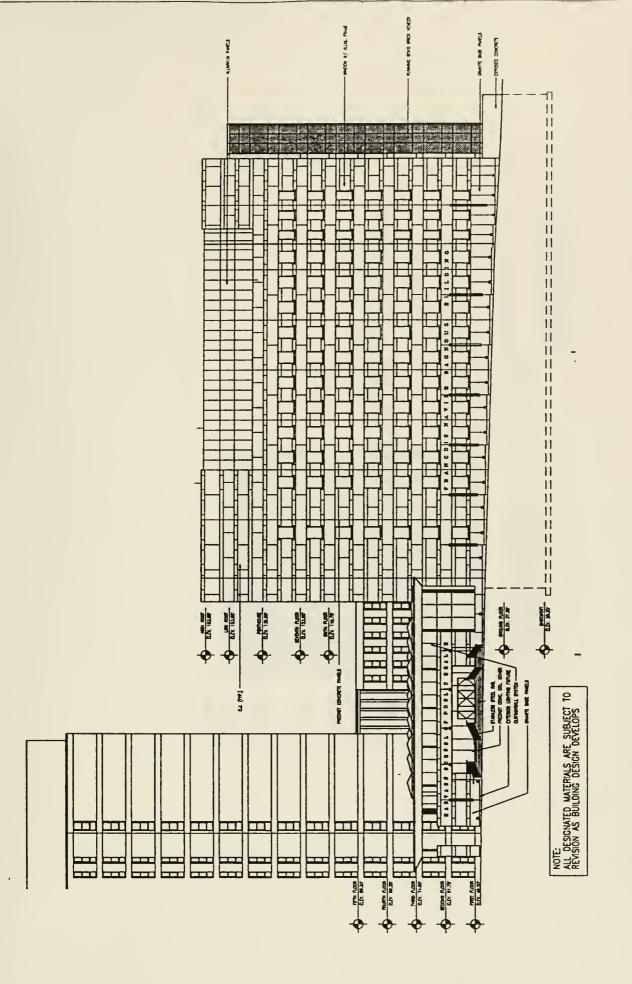
DPIR SUBMISSION

HARVARD SCHOOL OF PUBLIC HEALTH - FRANCOIS-XAVIER BAGNOUD BUILDING SEPTEMBER 1993

PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522

ASSOCIATES ARCHITECTS PLANNERS PAYETTE





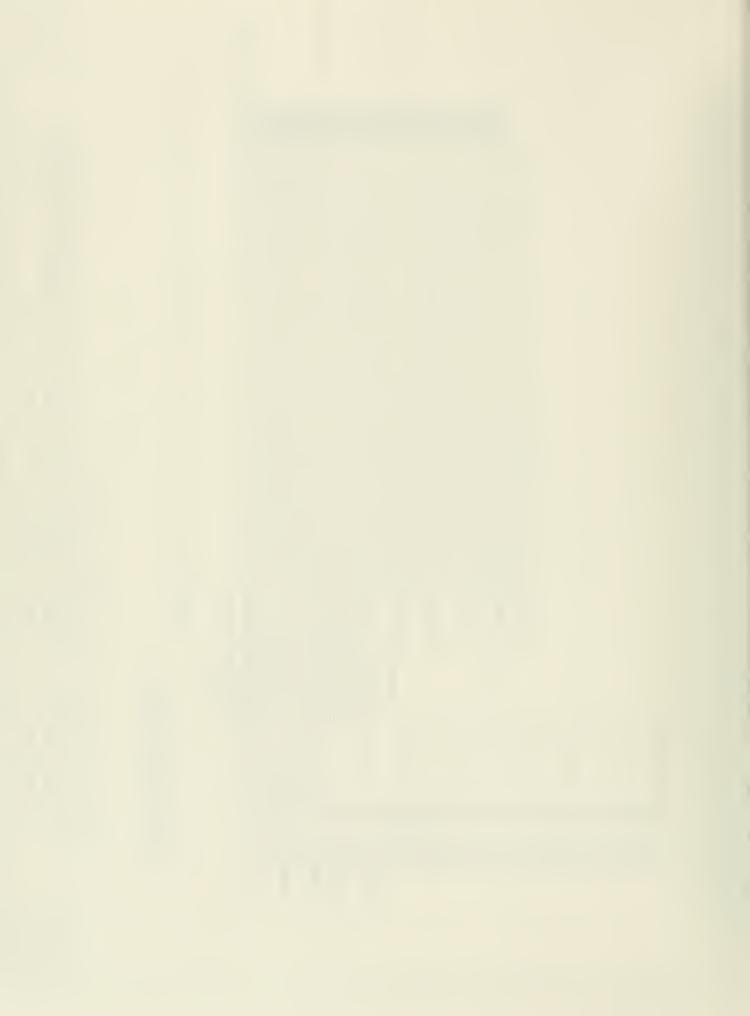
SOUTH ELEVATION (HUNTINGTON AVENUE)

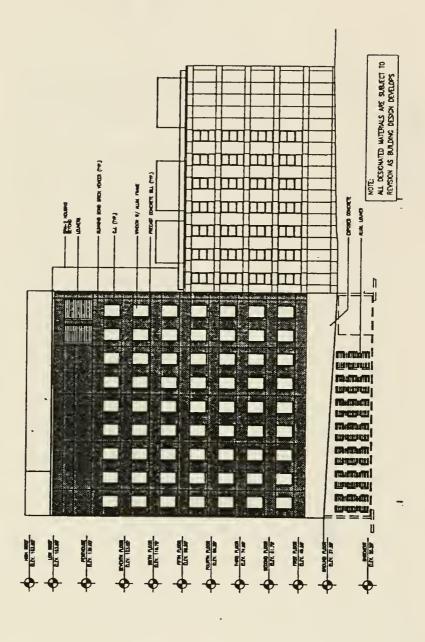
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PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522

PAYETTE ASSOCIATES ARCHITECTS

PLANNERS





NORTH ELEVATION

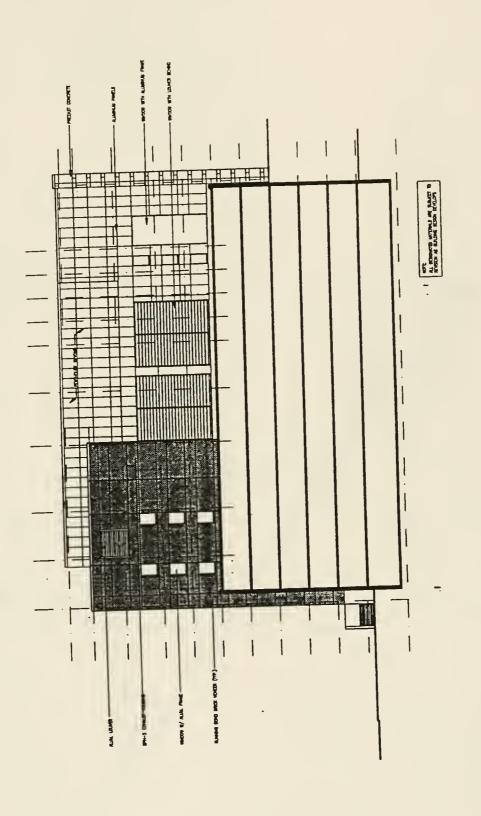
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PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522

PAYETTE ASSOCIATES ARCHITECTS

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WEST ELEVATION

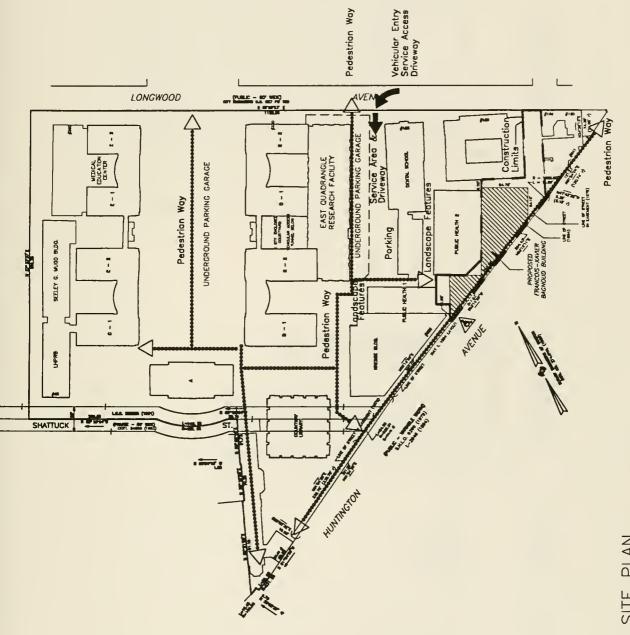
ARCHITECTS PLANNERS

PAYETTE ASSOCIATES

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15 APR 1993

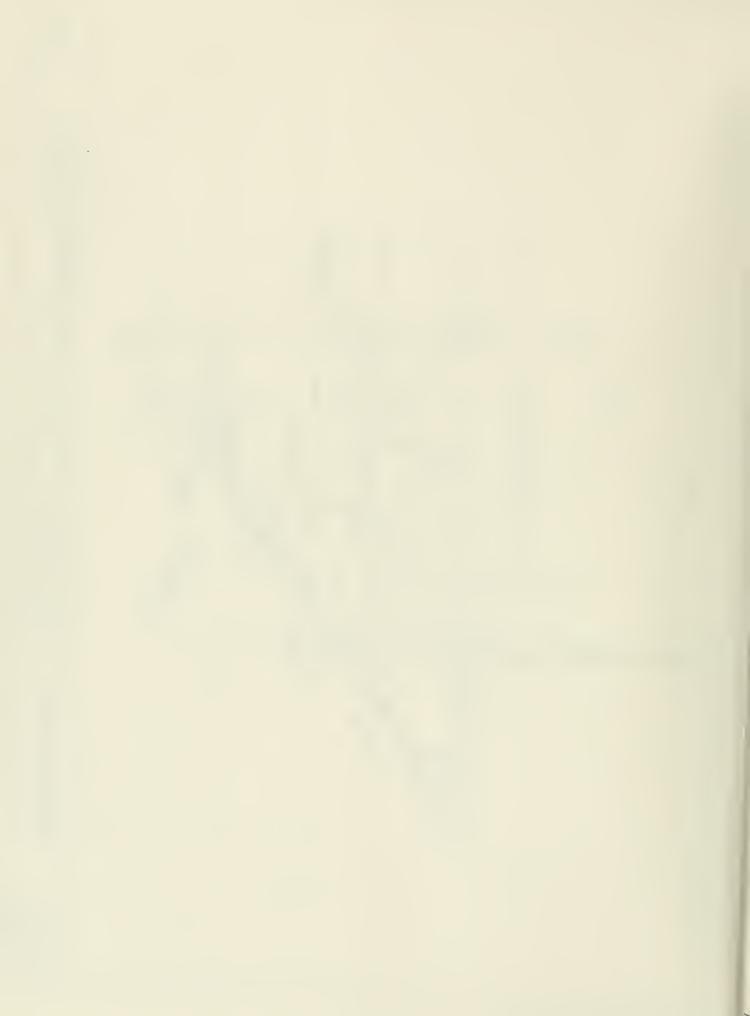


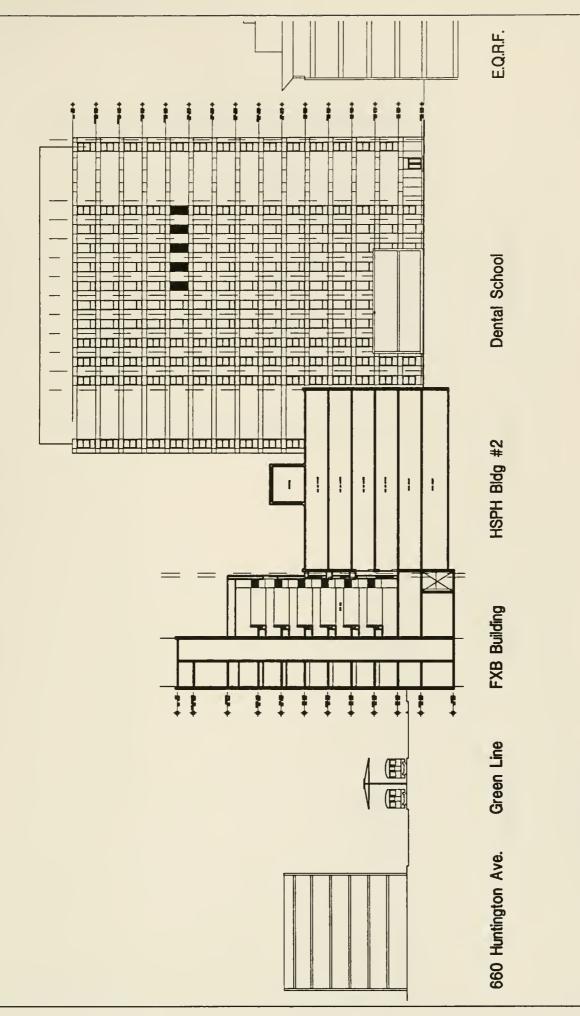
SITE PLAN

HARVARD SCHOOL OF PUBLIC HEALTH - FRANCOIS-XAVIER BAGNOUD BUILDING

PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522

PLANNERS PAYETTE ASSOCIATES ARCHITECTS





A 4.2

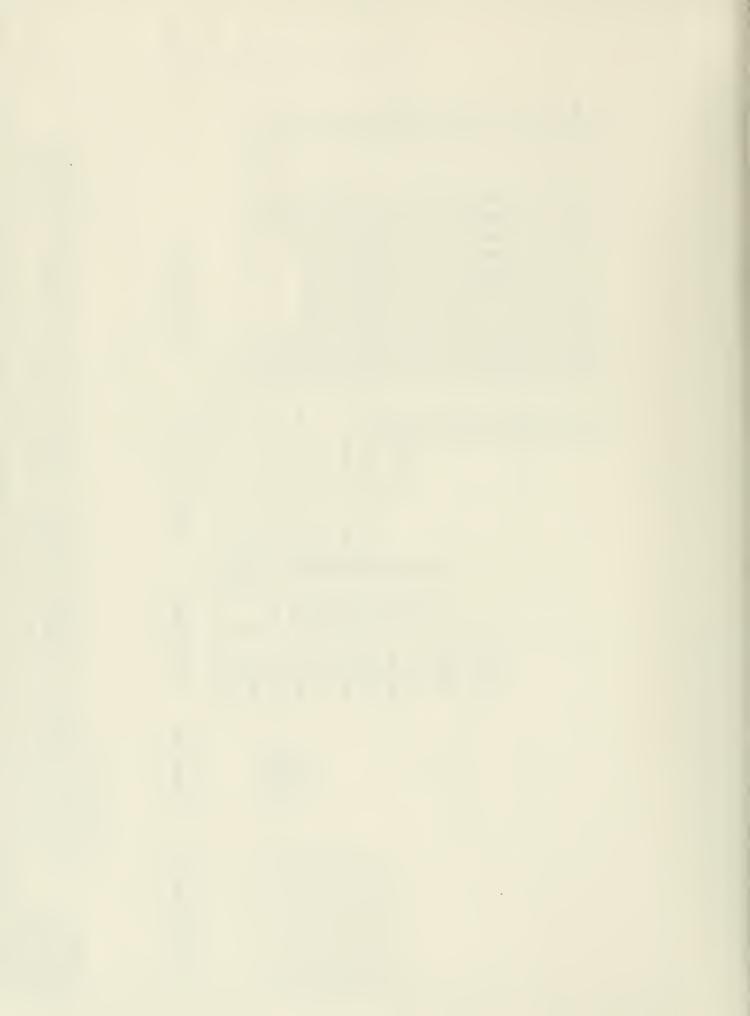
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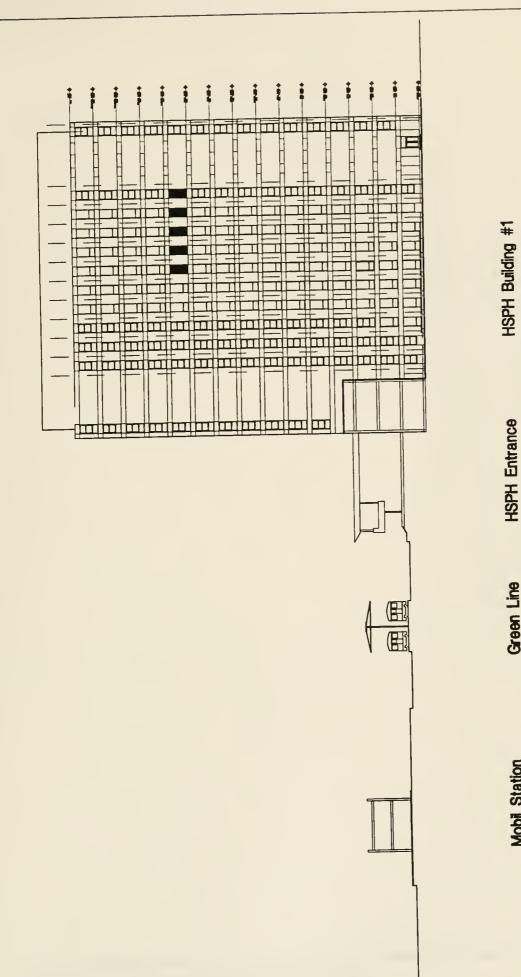
SECTION AA

PAYETTE ASSOCIATES

HARVARD SCHOOL OF PUBLIC HEALTH - FRANCOIS-XAVIER BAGNOUD BUILDING

PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522 ARCHITECTS PLANNERS





HSPH Building #1

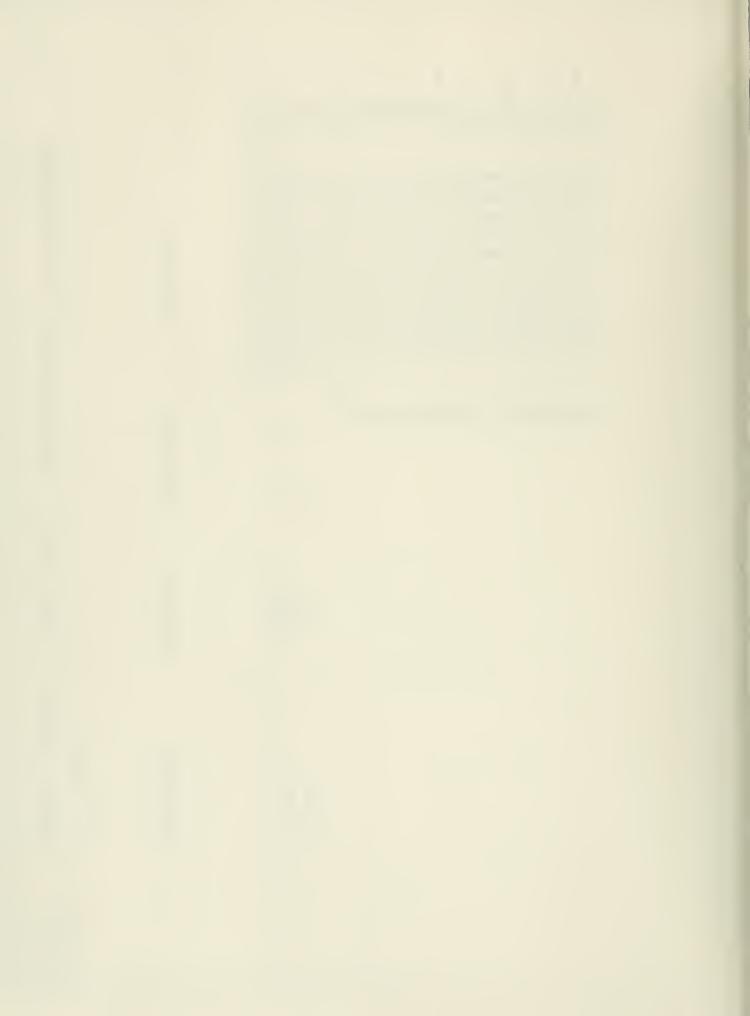
Green Line

Mobil Station

SECTION BB

16 AUG 1993 HARVARD SCHOOL OF PUBLIC HEALTH - FRANCOIS-XAVIER BAGNOUD BUILDING PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522

PLANNERS PAYETTE ASSOCIATES ARCHITECTS



## 3. Survey Drawings:

FRANCOIS-XAVIER BAGNOUD BUILDING

LS 1.1 LS 1.2



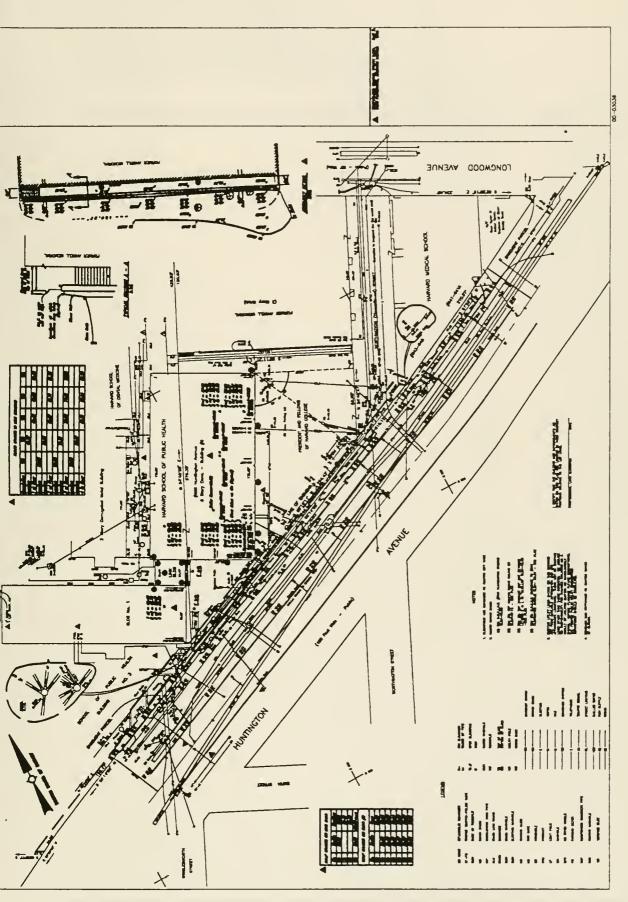
SEPTEMBER 1993

PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522

PLANNERS ARCHITECTS



SEPTEMBER 1993



DPIR SUBMISSION

SITE SURVEY

HARVARD SCHOOL OF PUBLIC HEALTH - FRANCOIS-XAVIER BAGNOUD BUILDING

PAYETTE ASSOCIATES INC. 285 SUMMER STREET, BOSTON, MASSACHUSETTS 02210-1522

PAYETTE ASSOCIATES

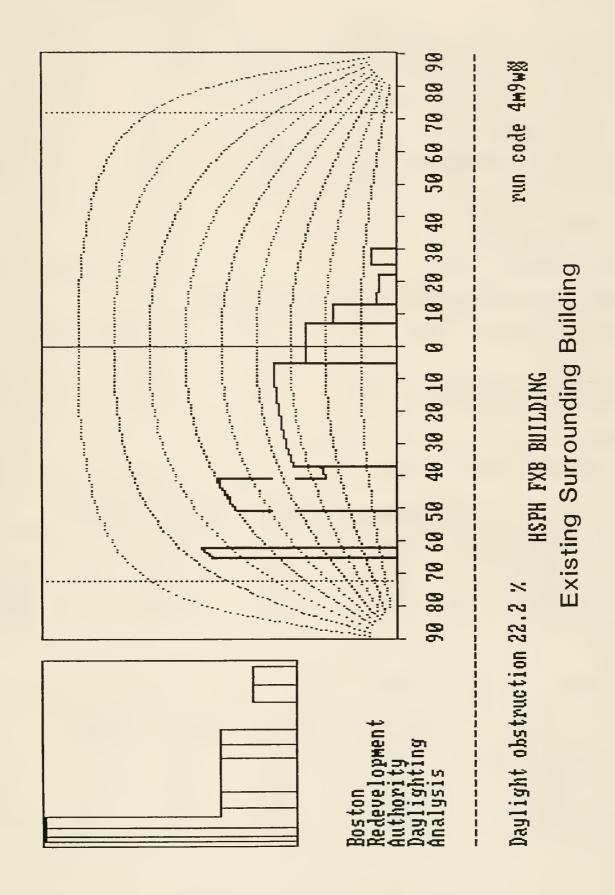
PLANNERS ARCHITECTS



# 4. B.R.A.D.A. Obstruction Diagrams

The following are the BRADA obstruction diagrams used in the Daylight Analysis portion of the report





# PROJECT DATA

PROJECT NAME : HSPH FXB BUILDING

BUILDING LOCATION : Boston

ARCHITECT / DEVELOPER : Payette Associates Inc.

DATE: 14July93

COMMENTS: Analysis of Existing Buildings

## SITE CHARACTERISTICS

Width of street : 100

Distance from street edge to front property line: 0

Width of property: 324

# BUILDING CHARACTERISTICS

\_\_\_\_\_

### LAYER 1

Distance back from front property line: 20

FROM		DIRECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW	
left prop li	ne	right	10	10	_	_	
ground		up	0	10	0	corner	1
corner 1		up	178	10	178	corner	2
corner 2		right	16	26	178	corner	3
corner 3		down	178	26	0	end of lag	yer

### LAYER 2

Distance back from layer 1 : 20

				LAYER COO	RDINATES	
FROM		DIRECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW
left prop	line	right	92	92	-	-
ground		up	0	92	0	corner 1
corner	1	up	55	92	55	corner 2
corner	2	right	62	154	55	corner 3
corner	3	down	55	154	0	end of layer

Distance back from layer 1 : 40

FROM	DIRECTION	DISTANCE	LAYER COC HORIZ(X)	RDINATES VERT(Y)	IS NOW	
left prop line	right					
ground	up	0	0	0	corner	1
corner 1	up	178	0	178	corner	2
corner 2	right	46	46	178	corner	3
corner 3	down	123	46	55	corner	4
corner 4	right	133	179	55	corner	5
corner 5	down	55	179	0	end of lay	yer

AYER 4

Distance back from layer 1 : 60

			LAYER COC	RDINATES	
FROM	DIRECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW
left prop line	right	62	62	-	-
ground	up	0	62	0	corner 1
corner 1	up	55	62	55	corner 2
corner 2	right	144	206	55	corner 3
corner 3	down	55	206	0	end of layer

AYER 5

Distance back from layer 1 : 80

		LAYER COC	RDINATES	
DIRECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW
right	290	290	-	_
up	0	290	0	corner 1
up	32	290	32	corner 2
right	33	323	32	corner 3
down	32	323	0	end of layer
	right up up right	right 290 up 0 up 32 right 33	DIRECTION DISTANCE HORIZ(X)  right 290 290 up 0 290 up 32 290 right 33 323	right 290 290 - up 0 290 0 up 32 290 32 right 33 323 32

AYER 6

Distance back from layer 1 : 120

			LAYER COO	RDINATES		
FROM	DIRECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW	
left prop line	right	258	258	-	-	
ground	up	0	258	0	corner	1
corner 1	up	32	258	32	corner	2
corner 2	right	65	323	32	corner	3
corner 3	down	32	323	0	end of lay	er

Reflectance

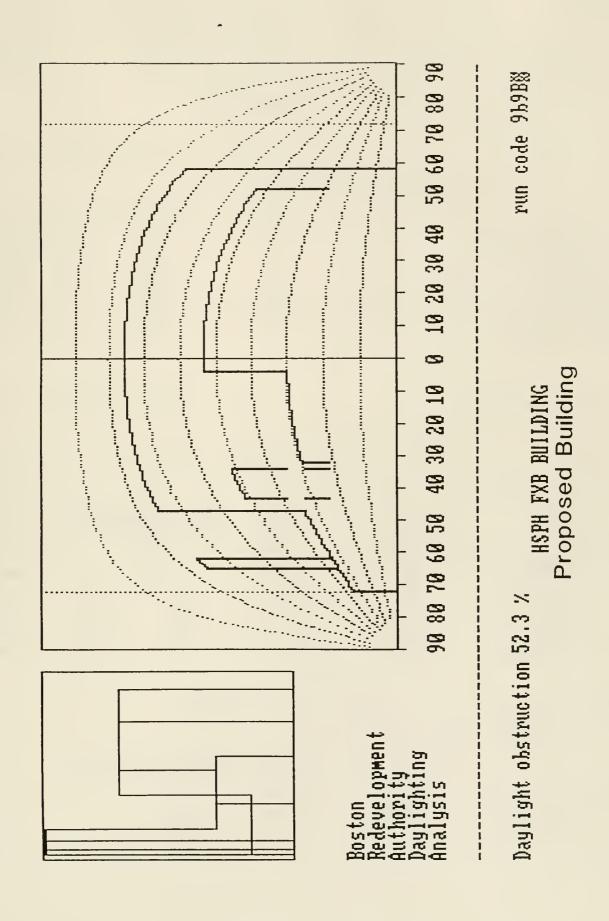
REGION 1 : SURFACE AREA REFLECTANCE

1 15400 45 %

Overall building reflectance 45 %

-----

Unadjusted daylight obstruction 24.2 %
Reflectance adjusted daylight obstruction 22.2 %



## PROJECT DATA

PROJECT NAME : HSPH FXB BUILDING

BUILDING LOCATION : Boston

ARCHITECT / DEVELOPER : Payette Associates Inc.

DATE: 14July93

COMMENTS: Analysis of Proposed Building

## SITE CHARACTERISTICS

.....

Width of street : 100

Distance from street edge to front property line : 0

Width of property: 324

### BUILDING CHARACTERISTICS

-----

### LAYER 1

Distance back from front property line : 0

			LAYER COO	RDINATES	
FROM	DIRECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW
left prop line	right	0	0	-	-
ground	up	0	0	0	corner 1
corner 1	up	30	0	30	corner 2
corner 2	right	108	108	30	corner 3
corner 3	up	93	108	123	corner 4
corner 4	right	136	244	123	corner 5
corner 5	down	123	244	0	end of layer

#### LAYER 2

Distance back from layer 1 : 20

			LAYER COO	RDINATES		
FROM	DIRECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW	
left prop line	right	10	10	_	-	
ground	up	0	10	0	corner	1

run code 9b9Bý

FF	ROM	DIRECTION	DISTANCE	LAYER COO HORIZ(X)	RDINATES VERT(Y)	IS NOW
corn	ner 2	up right down	178 16 178	10 26 26	178 178 0	corner 2 corner 3 end of layer

YER 3

Distance back from layer 1 : 40

				LAYER COC	RDINATES		
FROM	DIR	ECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW	
left prop 1:	ine r	ight	92	92	-	_	
ground		up	0	92	0	corner	1
corner :	1	up	55	92	55	corner	2
corner	2 r	ight	62	154	<b>5</b> 5	corner	3
.corner	3	up	68	154	123	corner	4
corner	4 r	ight	150	304	123	corner	5
corner 5	5 d	own	123	304	0	end of la	yer

YER 4

Distance back from layer 1 : 60

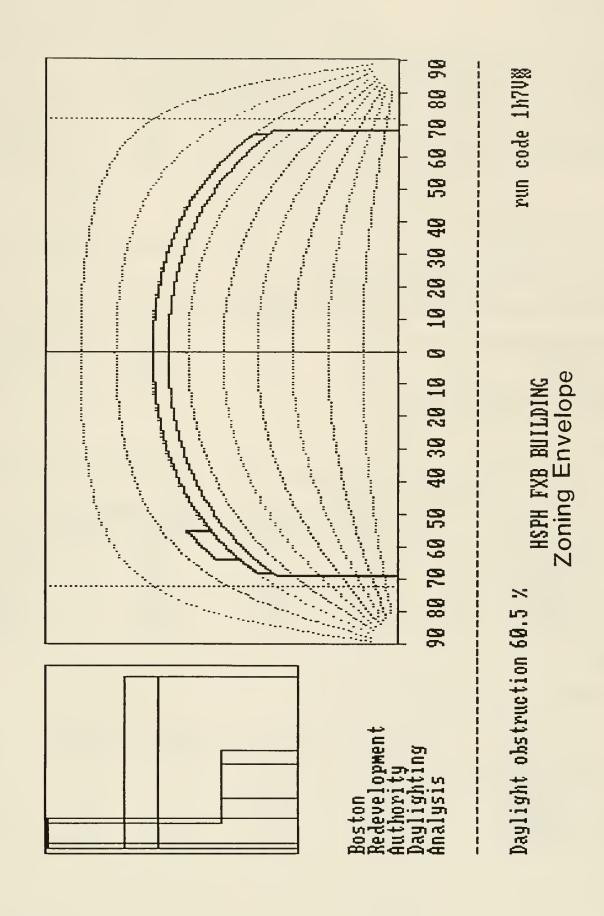
				ORDINATES	TO 17011
FROM	DIRECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW
left prop line	right	0	0	_	-
ground	up	0	0	0	corner l
corner 1	up	178	0	178	corner 2
corner 2	right	46	46	178	corner 3
corner 3	down	123	46	55	corner 4
corner 4	right	133	179	55	corner 5
corner 5	down	55	179	0	end of layer

eflectance

REGION 1 :	SURFACE	AREA	REFLECTANCE
	1	19350	45 %

.\_\_\_\_\_

Inadjusted daylight obstruction 54.3 %
Reflectance adjusted daylight obstruction 52.3 %



PROJECT DATA

PROJECT NAME : HSPH FXB BUILDING

BUILDING LOCATION : Boston

ARCHITECT / DEVELOPER : Payette Associates Inc.

DATE: 14July93

COMMENTS: Analysis of Zoning Envelope

SITE CHARACTERISTICS

Width of street: 100

Distance from street edge to front property line : 0

Width of property: 324

BUILDING CHARACTERISTICS

\_\_\_\_\_

LAYER 1

Distance back from front property line: 10

FROM	DIRECTION	DISTANCE	HORIZ(X)	VERT (Y)	IS NOW
left prop line	right	0	0	-	-
ground	up	0	0	0	corner 1
corner 1	up	100	0	100	corner 2
corner 2	right	315	315	100	corner 3
corner 3	down	100	315	0	end of layer

### LAYER 2

Distance back from layer 1 : 4

			LAYER COC	RDINATES	
FROM	DIRECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW
left prop line	right	0	0	-	-
ground	up	100	0	100	corner 1
corner 1	up	24	0	124	corner 2
corner 2	right	315	315	124	corner 3
corner 3	down	24	315	100	end of layer

### AYER 3

Distance back from layer 1 : 10

			LAYER COO	RDINATES	
FROM	DIRECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW
left prop line	right	10	10	-	-
ground	up	0	10	0	corner 1
corner 1	up	178	10	178	corner 2
corner 2	right	46	56	178	corner 3
corner 3	down	178	56	0	end of layer

### AYER 4

Distance back from layer 1 : 30

			LAYER COO	RDINATES	
FROM	DIRECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW
left prop line	right	92	92	_	-
ground	up	0	92	0	corner 1
corner 1	up	55	92	55	corner 2
corner 2	right	62	154	55	corner 3
corner 3	down	55	154	0	end of layer

### LAYER 5

Distance back from layer 1 : 50

			LAYER COC	RDINATES	
FROM	DIRECTION	DISTANCE	HORIZ(X)	VERT(Y)	IS NOW
left prop line	right	0	0	_	-
ground	up	0	0	0	corner l
corner 1	up	178	0	178	corner 2
corner 2	right	46	46	178	corner 3
corner 3	down	123	46	55	corner 4
corner 4	right	133	179	55	corner 5
corner 5	down	55	179	0	end of layer

Reflectance

REGION 1 :

SURFACE

AREA ------26791

1

Overall building reflectance 45 %

Unadjusted daylight obstruction 62.5 %
Reflectance adjusted daylight obstruction 60.5 %



# HARVARD SCHOOL OF PUBLIC HEALTH

Office of the Dean

### HARVARD SCHOOL OF PUBLIC HEALTH

DRAFT

**COMMUNITY REPORT** 

OCTOBER, 1993



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### Introduction



This document is intended to provide the Harvard School of Public Health and the Mission Hill communities with information about each other in order to promote more sharing of ideas and involvement in health and social issues affecting the future of individuals and families living in Mission Hill. It outlines on-going collaborations between HSPH and Mission Hill, and the names of people and organizations who can serve as a starting point for exploring new ways to help each other.

HSPH recognizes that promotion of a healthier community is sound community development policy. Good health makes certain a quality of life that in turn promotes a stronger community. HSPH can make specific, constructive contributions by offering its expertise and training to individuals as well as to help design and implement programs that further the goals of the Mission Hill community.

## The Mission Hill Community

Originally part of the Back Bay/Fenway area of Boston, the Mission Hill section of Roxbury was created from portions of the old "Quarry" and the flooded "Fens" area which was reclaimed by developers during the latter part of the last century. As a neighborhood, Mission Hill's growth has parallelled the growth of Boston's medical and academic community located in the Longwood Medical Area. This long-term relationship, while not without its tensions, has recently begun to provide this neighborhood with a number of advantages that, through growth and development planning, can serve as a model for positive community and institutional interaction.

As a recent Boston Redevelopment Authority report states, Mission Hill has a history as a community committed to maintaining quality of life in the face of the constant pressures for change coming from institutional expansion and shifts in the city's economy and demography.

Mission Hill is a community rich in people, diversity, cultural activities and

institutions which set it apart from more traditional neighborhoods in the city. It is bounded by Ruggles Street, Columbus Avenue, Heath Street and South Huntington Avenue. The Our Lady of Perpetual Help Mission Church basilica can be seen at the center of the neighborhood. The Brigham Circle/Triangle commercial area is the crossroad between the residential and institutional areas, where 75 retail, restaurant and service establishments serve the neighborhood. Mission Hill has high rise apartment buildings and two- and three-family housing units located on and around the actual "Hill." The area is also home to two of the City's larger public housing developments: the soon-to-be renovated Mission Hill Housing Development with a main office on Ward Street Street and the fully renovated Alice H. Taylor Apartments on Prentiss Street.

With a population of 17,571 people (1990), numerous model community-based organizations and 15 major academic and medical institutions in its backyard, Mission Hill is one of Boston's most unique residential neighborhoods. It is distinguished by its support for and promotion of community-wide activities ranging from pre-adolescent youth programs, senior citizens' programs, AIDS awareness efforts and model programs such as Project LIFE. Mission Hill is also more racially and ethnically diverse than other neighborhoods in Boston. Residing in the community are individuals and families who are 44% white, 25% African-American, 22% Hispanic and 9%, other races, one-half of whom are Asians and Pacific Islanders. A sign of its vitality, Mission Hill's population grew by 9% in the last decade, far exceeding the 2% growth recorded for the city of Boston in the same period.

Significantly, Mission Hill is young: about one-third of the population is young adults (ages 15 to 24) compared with 20% in the city of Boston. One-third of the residents of the Mission Main housing development were 15 years or younger in 1990. Twenty-eight per cent of households have single parents (compared to 36% in Boston as a whole); 33% of households are single person. Twenty per cent of families are foreign born.

The community has three elementary schools, the Farragut, the Tobin and the

Mission Church Grammar School, and is served by the Thomas Edison Middle School in Brighton and also the Brighton High School (there is no middle school nor high school within Mission Hill). Several newspapers serve the Mission Hill community in addition to the Boston Globe and Boston Herald: The Mission Hill Gazette, Mission Hill News, the Fenway News and El Mundo. The established churches span many denominations: Mission Church (Catholic), Gloucester Memorial Church (Presbyterian), Mission Hill Baptist Church, Greater Love Tabernacle, and Igesia de Dios.

# Harvard School of Public Health

The School's teaching program in public health began in 1913 as a joint venture between Harvard and MIT. Harvard formally founded the School in 1922, initially in association with Harvard's Medical School and, by 1946, established the School of Public Health as a free-standing faculty of Harvard University. Throughout these years, the School's mission has been to advance learning and discovery in public health through an array of research, training and teaching programs. Nearly 600 master's level, doctoral and post-doctoral students are enrolled for the '93-94 academic year. Approximately 33% of the students are foreign-born. Nearly 250 full- and part-time faculty serve the School. The School is concerned with the needs of populations, the prevention of disease and the preservation of good health. Rather than focus on treatment of illness, the public health approach stresses ways to anticipate and control disease and also to prevent behavior or conditions that can lead to health risks (e.g., substance abuse, drunk driving, poor diet, adolescent violence).

HSPH programs emphasize research and teaching in five areas: (1) the most urgent and important diseases of our time — AIDS, cancer and heart disease; (2) a healthier environment — development of strategies for a healthier environment, safer workplace and fewer injuries; (3) better and affordable health care — creating ways to reform health care to assure quality, contain costs and achieve greater equity; (4) healthier behavior, nutrition and lifestyle — communication and education of individuals to make healthier choices at every stage of life; and (5) a healthier world — building

human and technical capacity in developing countries and applying new science to health problems. HSPH also has diverse centers that bring together investigators from many disciplines to coordinate an inquiry into a specific problem area, such as injury control, health and human rights, cancer prevention and AIDS.

The School of Public Health is led by Harvey V. Fineberg, Dean of the Faculty, along with other deans who have academic or administrative responsibilities. These include James Ware, Dean for Academic Affairs; Richard Cannon, Dean for Administration; Cassandra Simmons, Assistant Dean for Students; Deborah Prothrow-Stith, Assistant Dean for Government and Community Affairs; and Gareth Green, Associate Dean for Professional Education.

Office of Government and Community Programs - Within the School of Public Health, this office is directed by Assistant Dean Deborah Prothrow-Stith, MD. The office is located at 718 Huntington Avenue. The staff includes Bruce E. Smith, community relations director; Sher Quaday, Assistant Director of Violence Prevention Programs; Wendy Grenon, administrative assistant; Donna Jules and Jacqueline Kral, staff assistants.

Its purposes are to help match community and government needs with HSPH expertise and research information; coordinate service opportunities for students and faculty with the city and state; and broaden and intensify the School's awareness of community needs and ways to interact with local public health agencies, education institutions and government. The office is also involved in development of new community health services programs, when a need is identified, and transfer of successful programs to independent status within the community. All these efforts help HSPH to achieve one of its goals: teaching the public about public health and healthy behavior.

Bruce Smith's role is to encourage an on-going growing partnership between HSPH and Mission Hill and to establish HSPH as a resource for neighbors and the community at large. As a resident of Mission Hill, Bruce has a personal stake in Mission

Hill community development. In his professional role, he identifies issues where HSPH can provide assistance, and provides institutional representation when HSPH participation is requested on boards and advisory committees that influence social and health issues in Mission Hill. Proposals from the Mission Hill community or from HSPH faculty, staff or students for new collaborative projects are often facilitated by Bruce.

## A Partnership with Mission Hill

The School has a commitment to provide expertise and technical support to Mission Hill that contribute to the health and quality of life of residents of Mission Hill. This stems from a sense of responsibility to the community in which the School lives. Over time, this spirit can be expressed individually by students, faculty and staff who become involved in programs or problem-solving in partnership with the Mission Hill community, its schools and organizations.

Both the School's history of community involvement along with activities planned for the future are outlined in this report.

## Youth programming

HSPH involvement with youth in Mission Hill has focused on health education and social support. A feature of HSPH involvement is innovative program design that significantly adds to school-based science curricula as well as social service programs. Most of the programming is aimed at children 13 years of age or younger, because these children are especially open to and potentially positively affected by learning about aspects of personal health, the environment and ways they can influence change in themselves and others.

HSPH sponsors an educational outreach program for schools in Mission Hill. The program, coordinated by Marshall Katler, a research specialist in the Department of

Environmental Health, utilizes a hands-on approach to focus on the interaction of health and environmental issues. Last year, science classroom teaching sponsored by HSPH reached 225 students. Classroom teaching has focused on kindgergarten, 4th, 5th, 6th and 7th graders at the Tobin, Farragut and Edison as well as children ages 11 to 13 years enrolled in the Back-to-School program at the Tobin Community School.

## 1) Health education

The HSPH Environmental Health Education Program has been involved with the Tobin School of many years. Some of the children have had multiple classroom opportunities. Since 1991, HSPH has co-sponsored programs at the Tobin with the U.S. Fish and Wildlife Service on wetlands and endangered species. These program, for 6th and 7th graders, include many in-class meetings and several field trips. Slides and video presentations and use of endangered species artifacts help increase the student's appreciation of the natural world and how changes can affect their health. The field trips have included Great Meadows Wildlife Refuge and Plum Island Wildlife Refuge. These programs will continue and be expanded in future years.

For the first time, for the academic year 1993-94, HSPH has been asked to develop an expanded program for kindergarteners at the Tobin School on health and environmental issues, including nutrition, general health, animals, plants and pollution, as a result of interest generated by learning opportunities designed for the Tobin Health Fair.

The 1993 Tobin annual School Health Fair featured HSPH-sponsored programs for kindergarteners about the habitat, diet and ecology of turtles and snakes, led by Kathleen Walsh. Also offered for the first time was a program for third graders on exercise through dance. Also at the Fair, using a model of the human torso, students, teachers and community members learned about general physiology and health issues.

Since HSPH has a diverse staff and student body, it has been possible to tailor responses to special requests. For example, a year ago, HSPH was asked to prepare two programs in Spanish for the Tobin School for fourth graders on water and water pollution. Debbie Tasat from the Department of Environmental Health taught this class. A class on the respiratory system was offered to the Edison Middle School in Brighton for the upper grades assisted by an HSPH staff who translated the material into Vietnamese.

At the Farragut School, HSPH has offered programs for two years. With the encouragement of the school's new principal, Charles Ray, hands-on science and health programs were offered concerning the respiratory system and physiciology, including tours of HSPH research laboratories. In the labs, students were able to use respiratory testing equipment to take perrsonal lung measurements. Planning for '93-94 is already underway.

For many years, HSPH staff and students have taught workshops and classes to the Back-to-School program at the Tobin Community School within the Tobin Community Center, for children ages 11-13 years. The Back-to-School program is one of several diversion programs offered by the Tobin Community School. This past year, in consultation with the program's director Ellen Spiegel, a class on nutrition was presented at HSPH. This included a tour of laboratories in the Nutrition Department and the Department of Environmental Health. A program on the respiratory stystem was also presented. Plans for programs in the next academic year are already underway.

The many people involved this past year include HSPH staff assistant Kathy Larsen, Research Assistants Karl Evans, Chris Kovacs, Lina Romero, Deborah Tasat and Kathleen Walsh, students Jay Mizgerd and Helen Suh, and post-doctoral student Naima Moustaid. The education programs have benefitted from the ideas and cooperation of teachers from Mission Hill including Jean Egan, Holly Nathan-Colon, Gerri Milgroom, Robert Milling, Ed Davis and Ruth Cohn from the Tobin School; Charles Ray, Barbara

Casserly, Christine Opanasets and Juanita Vivens from the Farragut School; and Ellen Spiegel and Jamie Rein from the Back-to-School program.

The STEPS program (Science Technology, Engineering Pre-College Studies) is a program founded and financed through the efforts of an organization of black professionals in engineering and science, Engineering and Scientific Resources for Advancement (ESRA) of Woburn, MA. Twice annually, middle school students from Boston public schools in grades 6-8, with a demonstrated interest in science, may apply to enroll in this course. HSPH facilities are used for eight to ten consecutive Saturdays, for 70 or more students for classroom teaching and discussion of trends and new ideas in science and engineering.

During the summer, HSPH has co-sponsored events with the Mission Possible Summer Program, sponsored by the Mission Church; with CityCamp, a day camp sponsored by the Boston Fenway Program (a consortium of cultural and educational institutions and businesses in Boston); with summer tutorial programs sponsored by Sociedad Latina, Inc.; with the Mission Hill Community Centers sports camps and with the Mission Hill Summer Program (Harvard's Phillips Brooks House is a co-sponsor). These collaborations have included provision of speakers and "role models," learning sessions on conflict resolution and violence prevention, visits to HSPH laboratories, lectures and financial support to purchase supplies. Combined these programs serve 400 children, ages 6-14 years, from July to the end of August.

Urban Improv, a new program initiated and partially supported by HSPH last year brought performing artists to Mission Hill Schools to help children express and talk about problems and concerns affecting their lives. This included movement exercise and short plays written and performed by children about problems of street violence and substance abuse. The program will be continued and expanded in the '93-'94 academic year.

In the future - A proposal by HSPH with the Farragut School has just been

approved for funding. A Chapter 636 grant from the City will be awarded to the Farragut School to implement a science and health curriculum for 4th graders. This will enable 1-2 class meetings each week for a full year on health, the environment, body systems and ecology, including air, land and water pollution.

Future plans also include extending the environmental classes to 7th graders at the Tobin.

## 2) Social Support

HSPH has actively supported the development of public health events at the Mission Hill Community Centers, for example, as part of their Basketball Jamboree projects. The all-day Jamboree typically features games and promotes a health or social issue such as substance abuse prevention, AIDS awareness, domestic violence, or voter registration. HSPH assists with promotion, purchases materials and provides volunteers to help staff the programs.

The United Youth of Boston has been writing and distributing a teen newspaper for almost 3 years. In its early stages, this program was sponsored and assisted by Professor Felton Earls, HSPH Department of Maternal and Child Health. Prof. Earls still advises the project and helped to secure funding when the newspaper was getting off the ground.

Project STOP, located at the Mission Hill Community Center, is a program promoting young male development, ages 18-23, particularly for young men who have not yet lived independently. Stephen Hendricks, a HSPH alumnus, has provided technical help to the program which enabled program expansion and successful fundraising.

Father's, Inc., a city-wide program which also serves Mission Hill residents, teaches life skills and parental responsibility to young men. HSPH community relations

director, Bruce Smith, introduced Michael O'Neil, the director to Mary Thurber, director of the volunteer student consulting program at the Harvard Business School.

Subsequently, HBS provided help with development of a strategic work plan for building the program. Later, the program secured funds from the Boston Healthy Start Initiative and from Children's Hospital.

## Community Service

Community service by HSPH volunteers represents both a giving of oneself but and an expression of our obligation to assist Mission Hill, the community in which we live.

Community Partnership Day is sponsored each fall by HSPH's Office of Government and Community Programs. It is an opportunity for Mission Hill organizations and schools to meet faculty and students and recruit volunteers. It also provides HSPH students with an opportunity learn about and meet personnel from Mission Hill organizations. Profiles of Mission Hill organizations and institutions are included in a booklet. A panel discussion typically provides an organized way to exchange information, ask questions and describe future plans.

HSPH is co-sponsor with the Parker Hill/Fenway Neighborhood Service Center of the annual Senior Citizen's Dinner and Dance, now in its 9th year. The dinner has been a very popular annual affair. More than 100 seniors attended this past year's event.

The Arts and Crafts Fair was initiated for the first time in 1993 and will be repeated again this year. The fair provides an opportunity for local businesses as well as craftspeople and artists to show their work to the HSPH and Mission Hill communities.

Each year, various drives are initiated and coordinated by HSPH students and staff. This past year included drives for food, clothing, toys, books, equipment donations

and voter registration.

In the future - The HSPH Student Coordinating Committee will meet this fall to discuss the feasibility of organizing a volunteer assistance organization for the Mission Hill community. The purpose of the proposed organization is to identify and match students more effectively with community needs.

## Economic Development/Community Development

Boosting economic development of the Mission Hill community requires multiple strategies. It includes a commitment to the career development of young people; involvement in coalition-building that supports efforts to improve health and "seed" new ideas; job development; and innovation of strategies to promote health for all members of the community. In the future, HSPH efforts will focus more closely on improved recruitment for jobs from the community, community participation in HSPH computer training classes, currently offered only to HSPH staff, and encouraging interaction by HSPH staff, faculty and students with businesses in the community.

## 1) Career development

The Minority High School Summer Research Apprenticeship Program (RAP) is funded by the National Institutes of Health and run by the Office of Human Resources at HSPH. Over the past 7 years, the program has enrolled 70 students. From over 68 applicants this year, 13 students (including 1 teacher) have been enrolled. Bruce Smith, through the Office of Government and Community Programs at HSPH, notifies students from Mission Hill about these opportunities.

The program is designed to help youth from the greater Boston area to learn about career opportunities in public health, medicine and science. Typically, 12 students and two teachers each summer spend eight weeks at HSPH. It features "brown bag

lunches" and informal discussions with researchers, field trips, lectures at Harvard affiliated hospitals, workshops on life skills, and practical experience on a selected research project. Enrolled students demonstrate both interest and ability in the sciences or health. Each student is sponsored by a faculty member. Faculty sponsors for the summer '93 program came from the Departments of Environmental Health, Health and Social Behavior, Maternal and Child Health and Epidemiology.

Carolyn Everette, HSPH Director of Human Resources, has taught job preparedness seminars, most recently, to women participating in Project LIFE. These seminars consider how personal and family issues can affect a job search or performance on the job. She is currently working with Sociedad Latina to identify individuals for HSPH's computer training program.

## 2) Coalition Building

HSPH maintains representation on a number of community boards: Mission Possible Summer Program; Mission Hill Community Centers; Parker Hill/Fenway Neighborhood Service Center; Project LIFE; the Boston Fenway Program; and the Mission Hill/Healthy Boston Coalition.

HSPH actively participates in the Mission Hill/Healthy Boston Coalition, a unique collaboration of city, state and private institutions. Mission Hill was selected last year as a target coalition community. The coalition's central feature is an open, multi-cultural planning process designed to enable residents to identify health needs and guide development of a community-based strategy.

In the future - HSPH expertise will be mobilized through Mission Hill/Healthy Boston Coalition to support the coalition-building process focused on improving health in Mission Hill. A small grant is being sought that would permit retaining a coordinator of the coalition's effort.

## 3) Recruitment tailored to Mission Hill needs

HSPH has a working relationship with Madison Park High School, Boston's vocational training high school, which has effectively channeled students to job opportunities during the school year and to permanent placement after graduation. This past year, 6 students had school-year placements, and three graduating students were placed in permanent positions and are attending community college with tuition support through Harvard's Tuition Assistance Program.

HSPH lists job openings in local newspapers, including papers serving both the African-American and Hispanic communities, and at job fairs at Roxbury Community College and Madison Park High School. However, more will be done to achieve successful recruitment of eligible Mission Hill residents and students for job openings. To develop more relevant training and a better match of individual to job opening, HSPH has initiated a process to develop an education and employment profile of Mission Hill residents. This should facilitate communication about training opportunities and job openings with people from the Mission Hill community.

Additional vehicles for improving recruitment and matching for existing jobs includes posting jobs at Mission Hill agencies, sponsoring job fairs at HSPH and within the community, and developing youth apprenticeship opportunities.

## 4) Promotion of Mission Hill businesses

HSPH is committed to helping support local businesses. HSPH plans to develop a Mission Hill directory of businesses for use within the HSPH community. The directory would be assembled to help local businesses market their services to HSPH departments and programs. Also planned is a liaison between Mission Hill property-owners and the HSPH Office for Students in order to provide information within HSPH about rental properties and units in Mission Hill.

## 5) Collaborations to promote health

HSPH recognizes that promotion of a healthier community is sound community development policy. HSPH contributions can occur by offering training to individuals from the community and also by supplying students to the community to develop new ways of delivering services.

HSPH Master of Public Health program - This is an intensive nine-month professional training program for individuals with a substantial background in health or medicine. Most enrolled students are physicians. The course of training requires an internship enabling student teams to examine health problems in an in-depth manner and design a plan or response. These opportunities for learning by students and constructive assistance to the community are facilitated by Roberta Gianfortoni through the MPH Program Office, directed by Associate Dean Gareth Green.

In two of the concentrations, public management and community health and also health care management, students are encouraged to engage in projects that affect the future health of people residing in Massachusetts and that sometimes serve as models in other states and regions of the U.S. Most recently, students were involved in efforts such as: Through the Boston Department of Health and Hospitals, development of a plan for maternal and child health services for the entire; for the state Department of Public Health, an evaluation of the housing needs of families with special needs children; and for the Department of Health and Hospitals, development of goals and objectives for school-based health clinics. Another team of students worked with the DHH Office of Treatment Improvement to examine the feasibility of a new substance abuse intervention program for women of color, offered through churches.

Master's level projects and independent study - In the community health course in the MPH curriculum, Professor Rima Rudd requires students to participate in 20 hours or more of "observation." This gives students an opportunity to observe and engage in a constructive dialogue with community agencies concerning innovative strategies in health education. Its main premise is to promote participation, empowerment and control for agency health practitioners. This can also lay groundwork for a longer internship which can be elected by students in the spring of the academic year. Last year, in another project, students supported a program to train outreach workers at the Martha Eliot Health Center. A follow-up evaluation of the program was facilitated by students this past year.

Tutorials or independent study are opportunities for students to engage in a lengthier, in-depth examination of a community health issue. Students can, for example, conduct a program evaluation, a requirement of many funding applications. Tutorials can also include training program design, proposal writing, as well as fact-finding (e.g., focus groups).

Benefiting from community teachers was a key feature of a recent tutorial offered by HSPH doctoral student, Lenore Azaroff, on the provision of health care to marginalized populations. It involved four case studies designed to elicit more creative ideas about how community organizations can be a vehicle for improving health care. Agency heads and practitioners from various communities -- inner city Boston, western Massachusetts, El Salvador and Israel -- were invited to teach. Lecturers included Michael O'Neil, director of Father's, Inc., Pamela Faura, director of Project LIFE, and Clara Garcia from IBA (Inquilinos Boricuas En Accion). The tutorial will be offered again in the coming academic year.

HSPH continues to offer year-round programs, seminars, and symposia, open to the public, on current public health issues, including the annual Public Health Rounds, occasional forums, the Hinton lectures, and others.

## **AIDS**

The Boston AIDS Consortium was created in 1987, with support from the Harvard School of Public Health, in response to the need for coordinated planning and resource development for AIDS services and support. The consequences of the lack of coordination had already been demonstrated in cities where the epidemic had spread more rapidly than in Boston. Today, the Boston AIDS Consortium is composed of 200 organizations, ranging from drug treatment providers, community health centers, HIV peer counseling organizations, to women's health organizations and clinics, city and state agencies and hospitals. Its office is located within the Harvard School of Public Health at 718 Huntington Avenue. The Consortium is funded through other private sources and some funds from the city of Boston.

Its model of consensus-building and community direction in setting HIV/AIDS program and service priorities was the basis for the national Ryan White CARE Act, a federal program that provides cities with millions of dollars of emergency AIDS relief support each year. Because of its efforts to help interested providers and groups develop a coherent plan, the Boston AIDS Consortium is credited with successfully leveraging funds from the city and federal government to assist Boston's HIV population.

# Health and Human Rights

The François-Xavier Bagnoud Center for Health and Human Rights (FXB Center) was established in December, 1992 through a gift from the Association François-Xavier Bagnoud, a charitable organization based in Switzerland. The benefactor for this new center, Albina du Boisrouvray, formed her association to honor the memory of her son, François-Xavier, and provided the gift to HSPH to launch the center in order to examine the social, political and eocnomic issues involved in achieving healthy lives for all people. The Center's purpose is to focus on the relationship between health and human rights. This includes issues such as how health policies and programs can burden or

violate human rights, as well as how disease or poor health, because of economic, political and societal barriers, can disproportionately affect certain groups.

The FXB Center will stimulate dialogue on these important issues through research, training and education. Symposia, fellowship programs and a published journal will be some of the ways used to educate, increase awareness, and, hopefully, lead to resolution of some of the major public health problems affecting developing and industrialized nations.

The Children's Health and Human Rights Project will be launched this year. Its purpose is to provide policy-makers and children's advocates with a core set of measures of children's health to be used in Boston. Its process will involve assessment of current indictators of children's health and review of them in the context of the Universal Declaration of Human Rights and the Convention on Children's Rights. The first step will involve assembling a group of program planners and children's advocates to review indicators in current use and design a core set of measures. Later, HSPH students will be involved in data gathering, once the core measures are agreed upon, and also in analysis of this information against the international human rights standards.

During the coming academic year, the FXB Center will host a seminar series for Boston audiences. Speakers will be available to consult with local professionals, providers and human rights advocates.

## Maternal and Child Health

Project LIFE (Lowering Infant Fatality through Empowerment) was created seven years ago to respond to an alarmingly high infant mortality rate in the Mission Hill community. Concerned representatives from two major community groups approached HSPH and the Parker Hill/Fenway Neighborhood Service Center to find solutions. It was obvious to the founders that assuring healthy parents and babies required services

beyond increasing access to and use of prenatal care. Today, the agency's track record of success, both in terms of outreach and expanding funding sources, is evidence of the critical importance of its comprehensive and innovative approach. Its evolution to independent status is an example of how a community-institutional partnership can produce important, enduring programs for the community.

When Project LIFE opened its doors in 1988, the central service was provided by community health coordinators, women from the community specially trained to do counseling, peer suport and advocacy. Today the centerpiece of Project LIFE, these coordinators have a unique understanding of the problems and challenges of the community in which they are residents and mothers. This type of peer support is designed to meet the needs of pregnant and parenting women and also empower them to take care of themselves through proper nutrition and healthier lifestyles.

By 1990, the Massachusetts Department of Public Health had awarded a four-year grant to Project LIFE. The funds supported assistance to women at risk during pregnancy and for two months after delivery. With HSPH acting as an administrative fiscal conduit, Project LIFE began to broaden its efforts to raise additional funds. The first executive director was hired in July 1991. On February 16, 1992, HSPH ceased its role and the agency became Project LIFE, Inc. with its own tax-exempt status.

Last year, the agency's three community health coordinators provided services to 177 women who were pregnant to 60-days postpartum. In October 1992, Project LIFE was awarded funds from the Boston Healthy Start Initiative to expand its services to additional high risk women with infants in the first year of life. Today, peer counseling is assisted by an array of support groups for men and women. The Young Males program provides support to partners of Project LIFE mothers.

The Empowerment of Peers Program launched two innovative training programs this past year. The first, supported by the Boston Globe Foundation, focused on

parenting during toddler and early childhood years, tailored to the needs of Latina and African-American families. The second program focused on health education and outreach. With support from the Department of Medical Security, the program trained thirteen women who increased their knowledge about health and also developed outreach skills. In turn, these women worked on reaching pregnant women, especially teens, encouraging mammography for older women, and also conducting home visits to identify and treat asthma. The participants also learned job-search skills to be used in pursuing health employment.

Project LIFE's Teen program provides special opportunity for young teen-aged men and women. With the help of an HSPH student, a questionnaire for teens was developed and used to identify gaps in information and services not currently met by school-based programs and adolescent clinics. On this basis, a special new curriculum, to meet needs identified by teens themselves, will be developed by Project LIFE for use in the community.

#### Mental health

HSPH has been an active member of the Mission Hill/Healthy Boston coalition in the development of the Casey Foundation Initiative to address mental health needs in three targeted communities: Mission Hill, Lower Roxbury and Highland Park. State and city contributions along with an initial grant from the Casey Foundation, enables the project to utilize the Mission Hill/Healthy Boston Coalition process for fostering community participation.

## Violence Prevention

The Office of Government and Community Programs, directed by Dr. Deborah Prothrow-Stith, facilitates training for counselors and students about violence prevention and peaceful conflict resolution. This has included peer training for counselors of

Project LIFE. Counselors with CityCamp and the Mission Hill Community Centers have been trained through seminars at the health centers, co-sponsored with the Boston Violence Prevention Project, directed by Linda Hudson.

A lecture following a viewing of the film "Boyz N the Hood" was sponsored at HSPH in July 1992, led by Professor Felton Earls, concerning attitudes about violence. In connection with the Research Apprenticeship Program (RAP), a panel discussion about violence prevention as a public health issue was offered to RAP students in August 1992 and 1993.

The Office of Government and Community Programs has tried to respond to the increasing need to seek strategies to ensure safer communities. The new "Community Violence Prevention Project" (CVPP), will develop a model for community action based on the track record of four exemplary prevention programs used in other U.S. cities. A resource center will be established within OGCP to provide help to communities that would like to implement the program.

In its second year within OGCP, the neighborhood health centers project is developing a protocol for health workers. The expectation is that violence prevention techniques will be incorporated into standard health practices at the Harvard Street Neighborhood Health Center and Roxbury Comprehensive Health Clinic.

#### Conclusion

Since the inception of HSPH community service and outreach to Mission Hill, the School has endeavored to advance public health knowledge and service in Boston and Mission Hill. HSPH has served, and will continue to serve, as a catalyst for improved community health as well as community service by members of the HSPH community. Whether the problem is infant mortality with city-wide implications or youth education in the Mission Hill community, HSPH remains committed to enhancing and promoting

Mission Hill's healthy future.

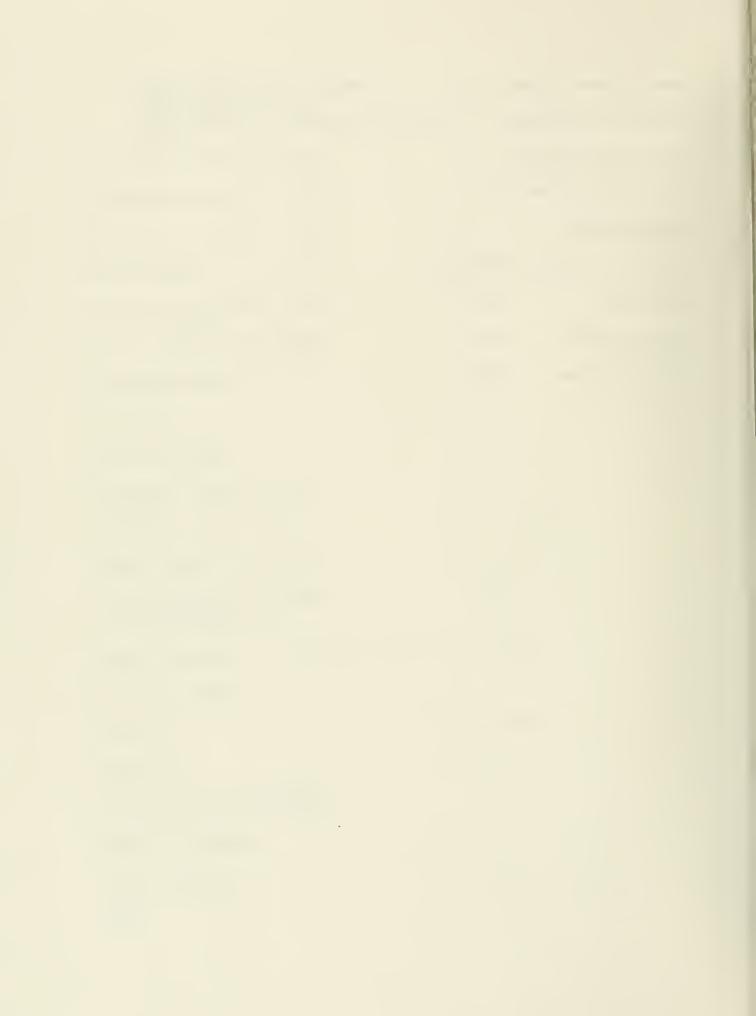


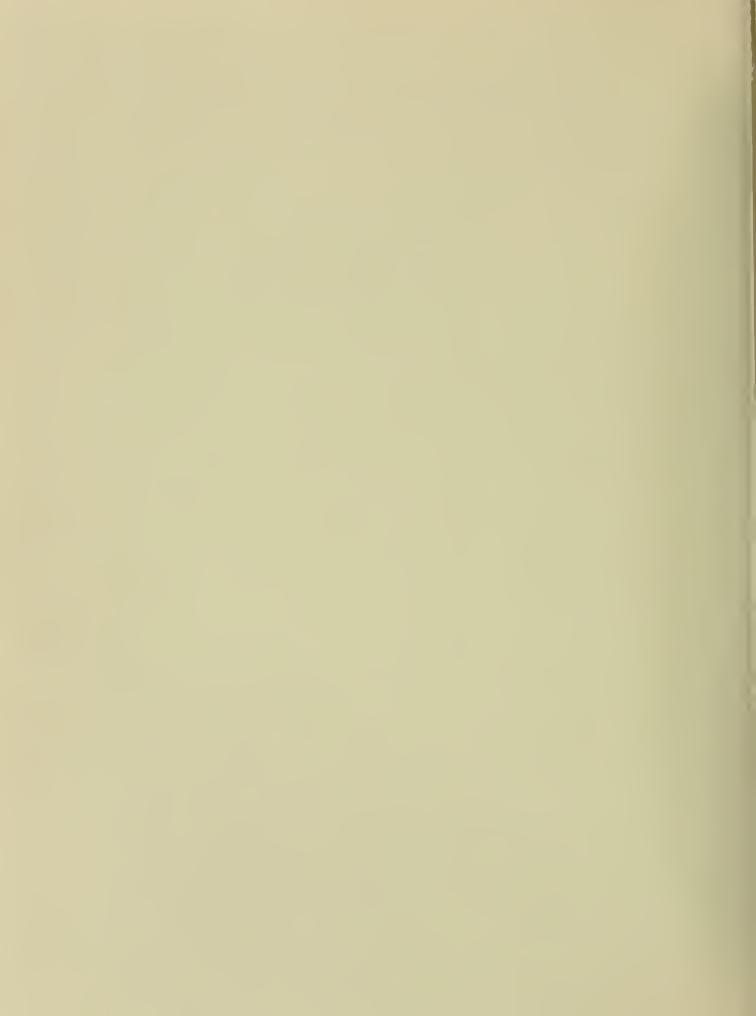
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